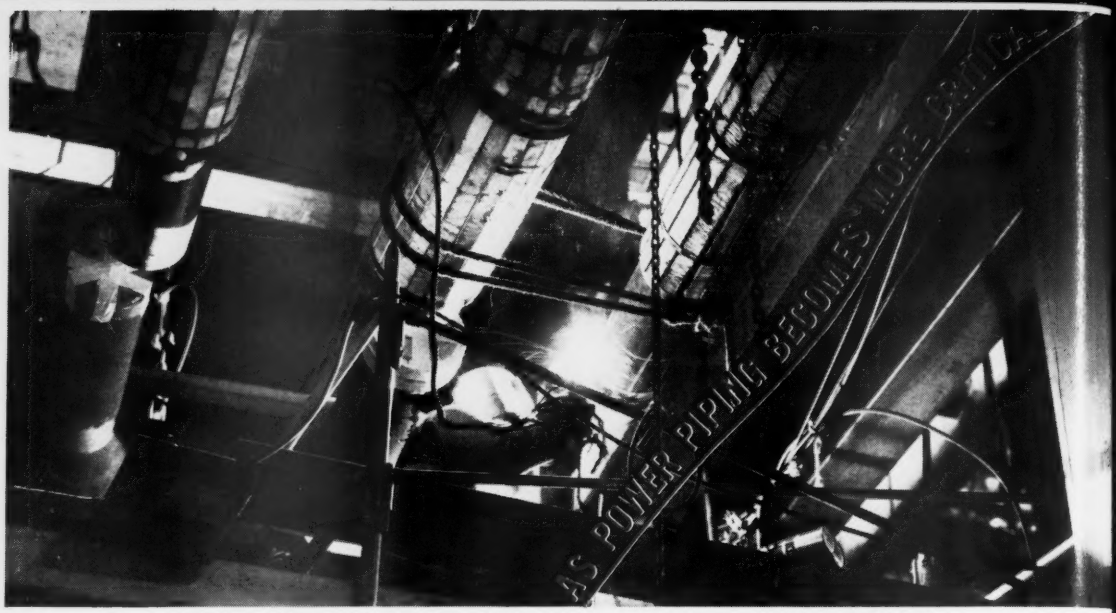
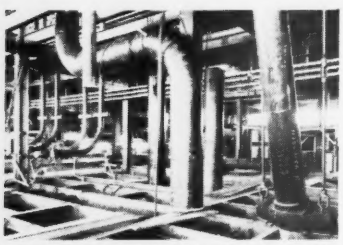
Public Utilities

Volume 62 No. 12 December 4, 1958

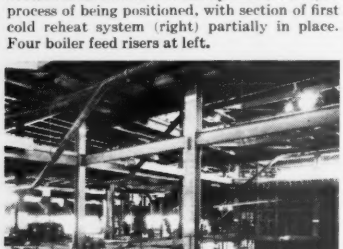


A main steam line is K-Welded to the mixing header. There are eight main steam lines to this header from the boiler, and four from mixing header to turbine. With inside diameters up to 4.938 in. and minimum wall thicknesses as much as 2.860 in., sections weigh four to five tons. Main steam header weighs over ten tons.

KELLOGG'S FIELD WELDING KEEPS PACE



Section of second cold reheat system (center) in process of being positioned, with section of first cold reheat system (right) partially in place. Four boiler feed risers at left.

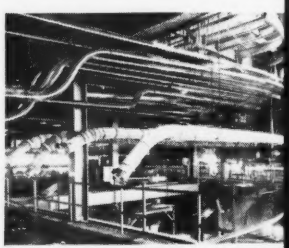


General view inside Eddystone Station, eleven floors high, showing high pressure boiler feed water risers (top and center) as these were being erected by Kellogg.

During erection of Philadelphia Electric Company's Eddystone Station, Unit No. 1, *eighty* K-Welds® . . . Kellogg's inert gas shielded technique of manual arc welding . . . will be made by Kellogg on the Type 316 stainless main steam lines alone. Following Kellogg's shop fabrication procedures on this job, every K-Weld will be given a total of *four* inspections by liquid penetrant and radiography during welding and after heat treatment.

Time required to finish and inspect each weld completely on this supercritical, heavy-walled piping is *eight to ten working days*. Further evidence of the magnitude and complexity of Kellogg's erection and welding assignment is provided by these construction photographs.

Kellogg welcomes inquiries on its complete service to the power piping industry from consulting engineers, engineers of power generating companies, and manufacturers of boilers, turbines, and allied equipment.



Four of the main steam lines, showing the protective wood lagging installed at Kellogg's. This is not removed, except at welding points, until insulation is applied.

Six of the eight special high pressure [lines] being installed by Kellogg at the Eddystone Station—Philadelphia Electric Company's supercritical steam power plant.

Fabricated Products Sales Division, THE M. W. KELLOGG COMPANY, 711 Third Avenue, New York 17, N.Y.

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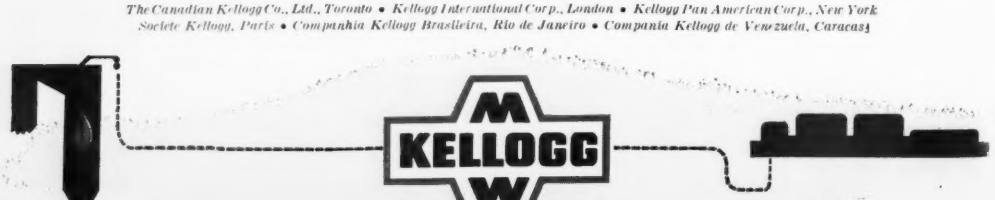

POWER PIPING—THE VITAL LINK

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Public Utilities FORTNIGHTLY

VOLUME 62 DECEMBER 4, 1958 NUMBER 12

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PUBLIC UTILITIES FORTNIGHTLY . . stands for federal and state regulation of both privately owned and operated utilities and publicly owned and operated utilities, on a fair and nondiscriminatory basis; for nondiscriminatory administration of laws; for equitable and nondiscriminatory taxation; and, in general—for the perpetuation of the free enterprise system. It is an open forum for the free expression of opinion concerning public utility regulation and allied topics. It is supported by subscription and advertising revenue; it is not the mouthpiece of any group or faction; it is not under the editorial supervision of, nor does it bear the endorsement of, any organization or association. The editors do not assume responsibility for the opinions expressed by its contributors.

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Pages with the Editors

THE recent balloting in the congressional elections lends fresh support, if any were needed, to the proposition that inflation is here to stay for a while. Of course, if we take the long view of history, inflation never has been stopped, reversed, or even controlled for very long. Inflation is as difficult to halt over substantial periods of time as the tides of the ocean.

IN many lands and in many ages, governmental authority has attempted to control, if not reverse, the deterioration of purchasing power of the local monetary unit. But, leaving aside the backing and filling of relatively short economic cycles, the end result has always been in favor of inflation. From the time of the Roman denarius, through the coin-clipping shenanigans of the post-Augustan Caesars, no monetary unit has ever won a lasting battle with inflation. The doubloon, the pistole, the pound, the mark, the ruble, the lira, the franc have all sunk lower with passing years from earlier levels of purchasing power. Is the dollar now following suit? It is, of course, and the only question is a relative one of how fast and how soon. The best that has been done, in a temporary way, has been to come to terms with inflation through adjustment of other economic factors in such a way as to slow down any unusual or abrupt spurt threatening to unbalance the economy as a whole.

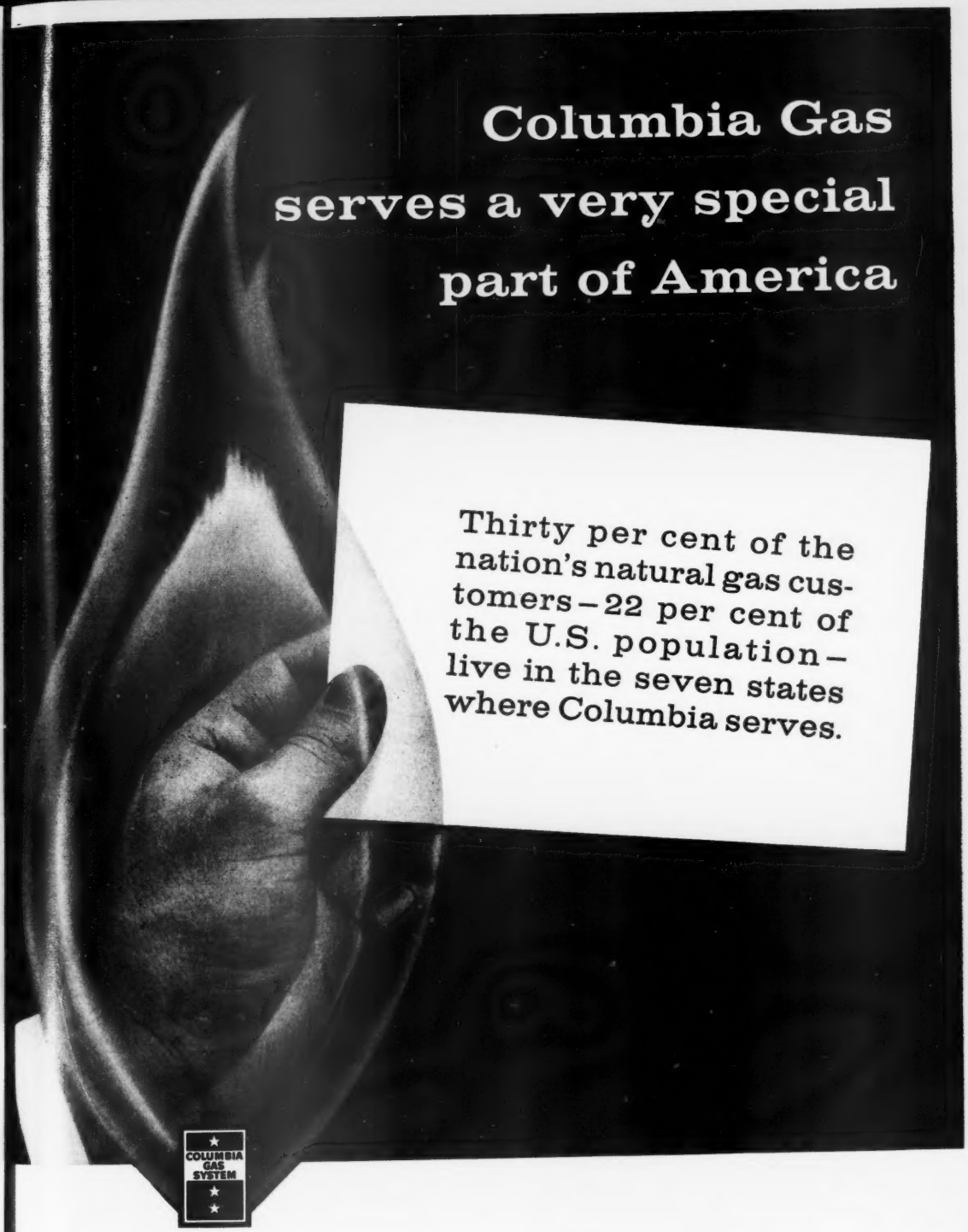
PROFESSOR Harold G. Moulton, longtime president of the Brookings Institution, in his recent book, *"Can Inflation Be Controlled?"* has given us some food for mature thought about the nature of inflation in modern society. He approaches the subject free of misconceptions which have been based on suspicious economic dogma concerning the relationship between changing commodity prices and the amount of money in circulation, the amount of gold available, interest rates, etc.

FRANKLIN H. COOK

PUBLIC utility companies, which have a vital stake not only in the amount of inflation, but also in the *pace* of inflation, might well ponder Professor Moulton's conclusion that it is political or economic factors which play the major rôle in calling the tempo of the inflationary rat race. He sees wages as a paramount influence. Of course, it can be proven that wars and other developments in the political sphere have caused short-term inflationary spirals. But over the long pull, Moulton sees the balance between wages and production as the principal influence on price levels. In other words, if labor presses for raises faster than technology can increase productivity, general price increases cannot be avoided.

FURTHERMORE, monetary controls are of no use in such a situation. Answering the question raised in his book, Professor Moulton thinks that inflation could be controlled to some extent, but he is not hopeful about our nation's capacity for doing so, under the present circumstances.

ALL of which brings home to the public utility companies the never-ending challenge of raising new capital to take care of expansion. Two of the articles in this issue, both by professional econo-



roughout its service territory—in Ohio, nnsylvania, West Virginia, Kentucky, rginia, Maryland and southern New rk – natural gas continues to be the *referred fuel* for home and industry.

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mists, deal with this puzzling aspect of operating regulated utility enterprises on a rapidly growing scale under the pressure of price inflation. In the opening article PROFESSOR FRANKLIN H. COOK of the College of Business Administration, Pennsylvania State University, has made an analysis of some past capital and debt relationships for steam, hydro, and purchasing-type utilities in the electric power field, in an effort to project what may happen under future cycles of deflation or continued inflation. He approaches the question from the standpoint of whether within the next quarter-century (the approximate life of equipment purchased), there will be inflation or deflation, or both.

PROFESSOR COOK was born in Vicksburg, Pennsylvania, in 1911 and graduated from Bucknell University (AB, '33). He took a law degree at Duke (LLB, '36) and a Master's degree in economics at Pennsylvania State University ('40). He joined the faculty of Pennsylvania State in 1937. He is a member of the American Economics Association, the American Association of University Professors, and American Business Law Association.

* * * *

PAUL C. MATHIS, author of our second article (beginning on page 944) in this issue, on the impact of inflation on utility earnings, is professor of economics at the State University of South Dakota. He raises the question of whether improved technology and increased consumption can offset price rises and stabilize rates of depreciation as in former years. Will the future investors demand higher dividend pay-out or percentage yield? Is the industry reaching the end of its time-tested, built-in capacity for absorbing increased operating costs by continued improvement?

PAUL C. MATHIS

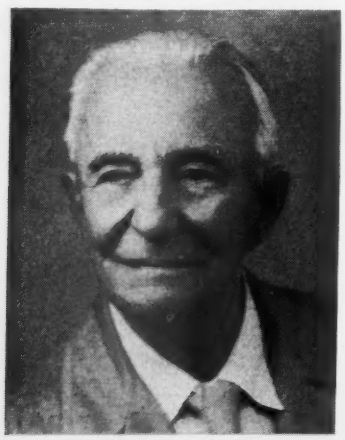
PROFESSOR MATHIS received both his AM and PhD degrees at the State University of Iowa. He has been at the State University of South Dakota since 1947 as professor of economics in the School of Business, College of Arts and Sciences, and the Graduate School. He has written several articles and monographs on business and economic subjects.

* * * *

THE third feature article in this issue (beginning on page 949) deals with the subject of considerable discussion among public relations people these days. That is the "image" of a utility company. Written by JAMES H. COLLINS of Washington, D. C., author of numerous business articles, this is an account of how differently various people feel about utility companies. It may not be the way some utility people themselves think. MR. COLLINS discusses the new survey tool (Motivation Research) which can be used to correct or at least change such images.

THE next number of this magazine will be out December 18th.

The Editors



JAMES H. COLLINS

In 1953 Pioneer joined with other groups, all reporting to the Atomic Energy Commission, for constant study of atomic energy application. Today Pioneer is qualified as a consultant to industry in the application of atomic reactor systems to the generation of electric power. Presently, Pioneer is acting as architect-engineer and supervisor of construction of the 66,000 kw commercial atomic power plant shown here. Allis-Chalmers Mfg. Co. is the prime contractor. Scheduled for 1962 completion, the plant, for the Northern States Power Co., will be known as the "Pathfinder".

Organized as Central Utilities Atomic Power Associates, these utilities will share in the research and development costs: Northern States Power Co., Central Electric and Gas Co., Interstate Power Co., Iowa Power and Light Co., Iowa Southern Utilities Co., Madison Gas and Electric Co., Mississippi Valley Public Service Co., Northwestern Public Service Co., Ottertail Power Co., St. Joseph Light and Power Co., Wisconsin Public Service Corp. **PIONEER SERVICE & ENGINEERING CO.**, 231 South La Salle Street, Chicago, Illinois.

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56 YEARS

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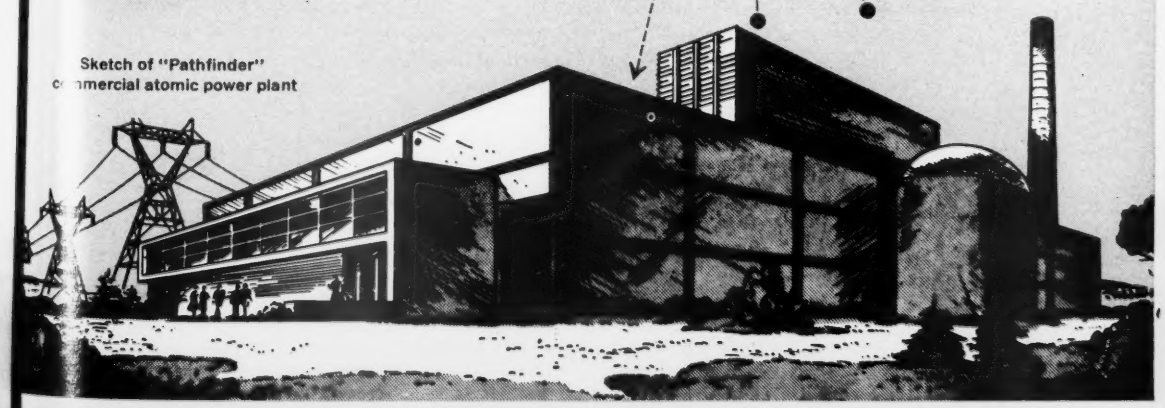


Sketch of "Pathfinder" commercial atomic power plant

Coming IN THE NEXT ISSUE

(December 20, 1958, issue)

★

DEFENDING FREE ENTERPRISE

Every summer in the small California city of Claremont, the Institute on Freedom and Competitive Enterprise goes into session for two weeks of lecturing and discussion. Top-flight professors, economists, and other intellectual specialists meet to examine and appraise the nature of free enterprise and its relationship to individual liberty. Since the first institute was held in June, 1954, thirteen lecturers have been drawn from Europe and the United States, including such international figures as John Jewkes, prominent Oxford economist, and Jacques L. Rueff, Chief Justice of the European Coal and Steel Community. Dr. Robert T. Patterson, a staff member of the American Institute for Economic Research, has written for readers in the public utility field, an account of this experiment in economic appraisal and review of the enterprise system.

ANOTHER LOOK AT STATE REGULATORY AGENCIES

Eric Schenker, assistant professor of economics, College of Business and Public Service, Michigan State University, believes that a fresh approach is needed for the determination of a fair rate of return in the light of inflationary influences and record plant expansion. Professor Schenker notes the line of demarcation between state and federal commissions in the power reserved to the states by the Tenth Amendment to the Constitution. The author feels that public utilities can only accomplish their objective of public service with enlightened management, understanding commissioners, and an interested public. But the public must be made aware that the rate it pays today assures availability of an ample supply of service in the future.

A CALIFORNIA STORY OF GAS PIONEERING

One of the pioneer gas companies in the United States was the old San Francisco Gas Company, which started in business in 1854 with 237 customers. Today its great-great-grandchild, Pacific Gas and Electric Company, is serving over a million and a half customers in excess of 200 billion cubic feet of gas a year. Jane Eshleman Conant of the staff of the San Francisco Call-Bulletin, has written an entertaining description of how this one company helped open the West and how it contributed greatly to the development of industry in the California area. Pacific, by right of corporate succession, thus is accounted one of the centenary gas companies in the United States. But it was first in a number of other respects. Nearly thirty years ago it introduced natural gas into the San Francisco area and barely missed doing so as early as 1921. And when a cold snap comes to San Francisco, Pacific Gas and Electric becomes, paradoxically, its own first "interruptible" customer for gas.

★

Also . . . ***Special financial news, digests, and interpretations of court and commission decisions, general news happenings, reviews, Washington gossip, and other features of interest to public utility regulators, companies, executives, financial experts, employees, investors, and others.***

Remarkable Remarks

"There never was in the world two opinions alike."
—MONTAIGNE

FRANK W. ABRAMS
Chairman, executive committee, Council for Financial Aid to Education.

"No business or industry . . . could exist without the highly trained personnel provided by our universities. There is no segment or element of our national economy that is more dependent on a free and independent educational system than American business."

LUDWIG VON MISES
Economist.

"There is only one way that leads to an improvement of the standard of living for the wage-earning masses—the increase in the amount of capital invested. All other methods, however popular they may be, are not only futile, but are actually detrimental to the well-being of those they allegedly want to benefit."

NORMAN TOPPING
President, University of Southern California.

"If our universities—and particularly our private universities—are to be regarded in the years ahead as the true fountainheads of learning, progress and freedom, and as great social instruments, they must decide how they will prepare themselves for this ever-increasing responsibility and this greater opportunity."

THOMAS NIXON CARVER
Columnist, Los Angeles Times.

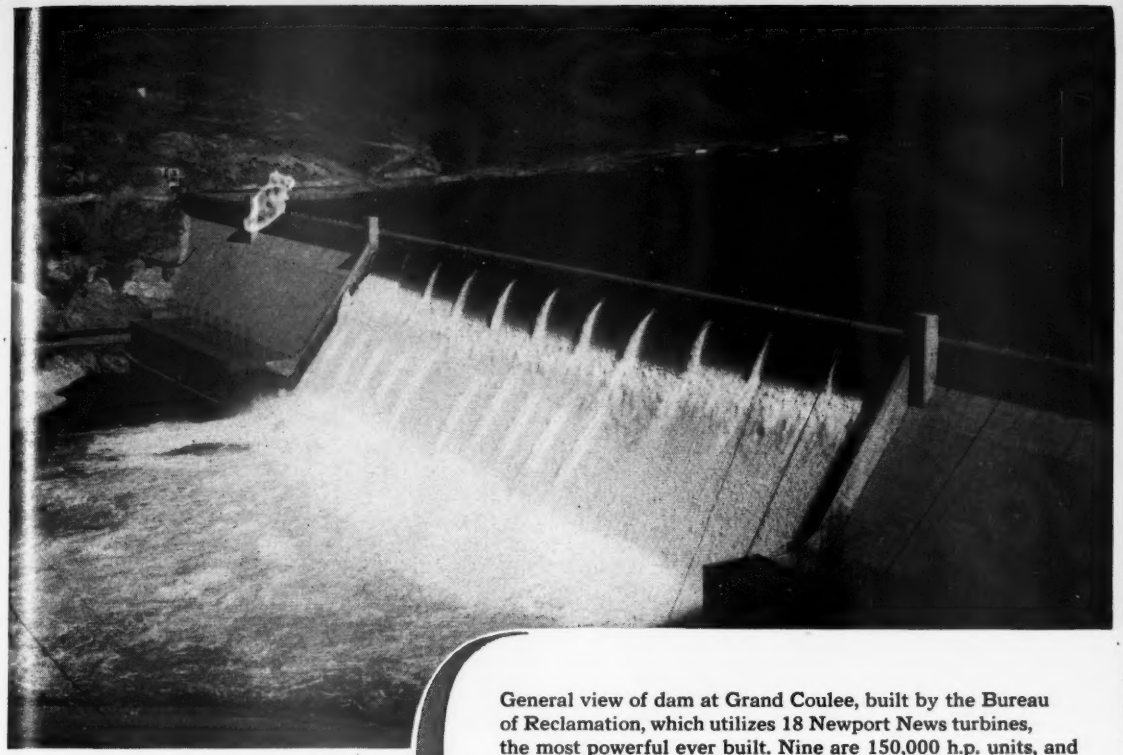
"Wherever men are permitted to own things they will own things. If a group may own things as a group they will occasionally do so. If more choose to own things individually than in groups it is because they like it better. If more people compete than co-operate it is because they prefer it that way—not because they were compelled to compete or forbidden to co-operate."

ROBERT W. KEAN
U. S. Representative from New Jersey.

"New Jersey taxpayers are paying 3¼ per cent of all federal taxes. I believe that, instead of putting the load on the taxpayer, private industry should do the job wherever possible. If private industry can do only a part of the job, then it should be done on a partnership basis. I cannot see the logic in the New Jersey taxpayer being called on to pay a part of the cost of any [public] power project which would in no way benefit him."

JOHN C. STERLING
Chairman, Advertising Council.

"Our national problems cannot be solved by a citizenry that does not know what the score is. On the other hand our problems are greatly multiplied by those who through misguided paternalism or mean or short-sighted interests seek to keep the facts from the people. A constructive and confident attack on the recession cannot be made by throwing sand in the public's eyes or by asking it to bury its head like an ostrich. From all sides the people are being asked to show confidence, but who is showing confidence in the people? The newspapers are when they lay the facts before them."



General view of dam at Grand Coulee, built by the Bureau of Reclamation, which utilizes 18 Newport News turbines, the most powerful ever built. Nine are 150,000 h.p. units, and the other nine are rated at 165,000 h.p. each.

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Hiwassee	Tennessee
Hoover	Nevada
J. H. Kerr	Virginia
Jim Woodruff	Florida
Lower Salmon	Idaho
Norris	Tennessee
Rock Creek	California
Santee-Cooper	South Carolina
C. J. Strike	Idaho
Whitney	Texas
Wilson	Alabama

Turbines designed and built for the world's largest development at Grand Coulee... and for other hydroelectric installations in America and various parts of the world... bespeak the skill and facilities offered by Newport News.

This trained organization has filled hydroelectric turbine contracts with an aggregate rated output of 7,000,000 horsepower.

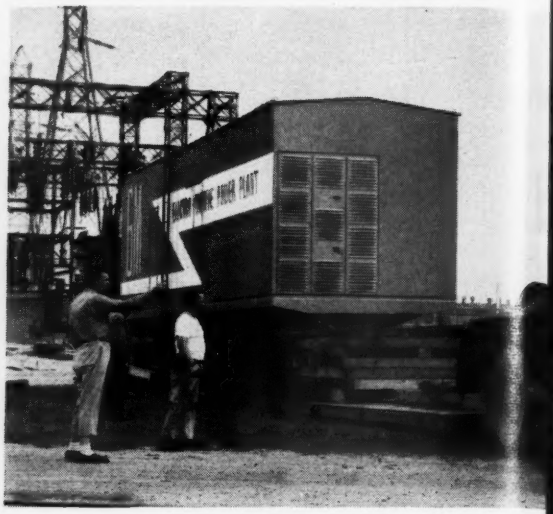
Other equipment designed and built by Newport News includes penstocks, pressure regulators, valves, pumps, gates and rack rakes. Upon request, a copy of our illustrated booklet entitled "WATER POWER EQUIPMENT" will be sent to you.

Newport News
SHIPBUILDING AND DRY DOCK COMPANY
Newport News, Virginia

6000 KW PEAKING PLANT

FIRST DAY

First of three self-housed generators is placed on flat-bed trailer or rail car at Electro-Motive Plant. Unit is then hauled to installation site.



THIRD DAY

First generator arrives at site. Previously, underground fuel tanks, lines, cables were installed, ground leveled and stone fill added. Ties were then placed on fill to form foundations for plant components.

SIXTH DAY

Third generator arrives at site. Controls component and second generator were installed day before. "Package" design of all components permits easy handling with winch and jacks.

EIGHTH DAY

Adjustment and inspection. Performance test on individual components begin. On ninth day, plant is checked out under actual load conditions, integrated into system operations. Safety fence completed.

N THE LINE IN TEN DAYS

TENTH DAY

6000 KW of new peaking and reserve power is put on the line. Landscaping was added later to complete site. Plant operates completely unattended, comes up to full load from dead start in less than ninety seconds. Entire plant could be moved to new site in same ten-day period, if changing load characteristics require such a move. For complete details, contact your Electro-Motive representative.

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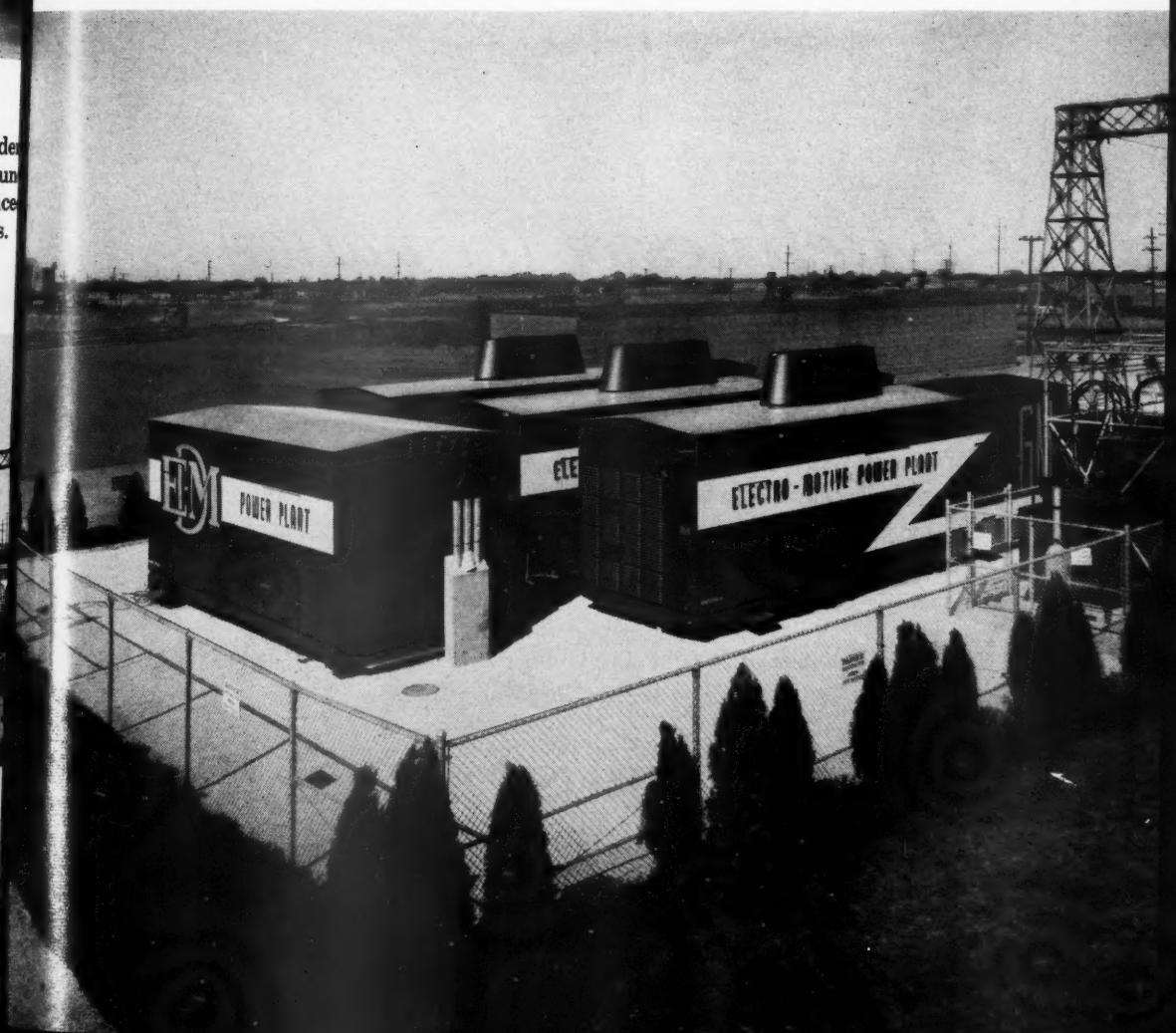

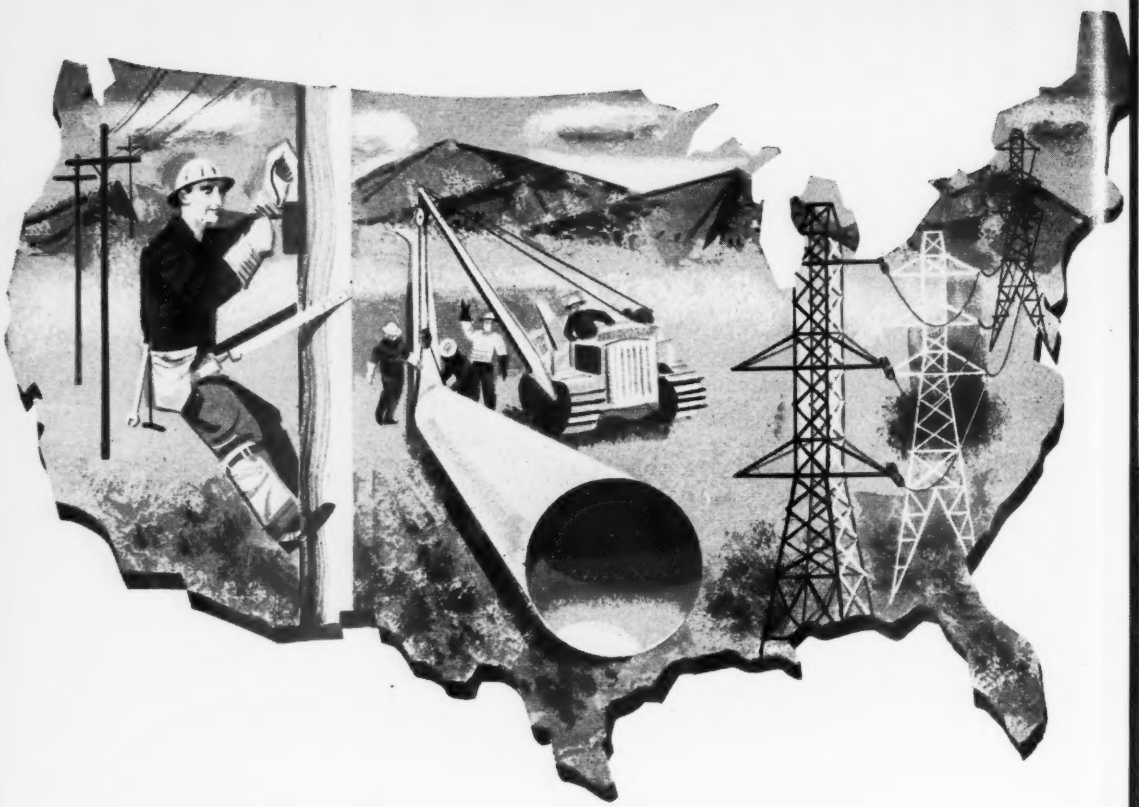

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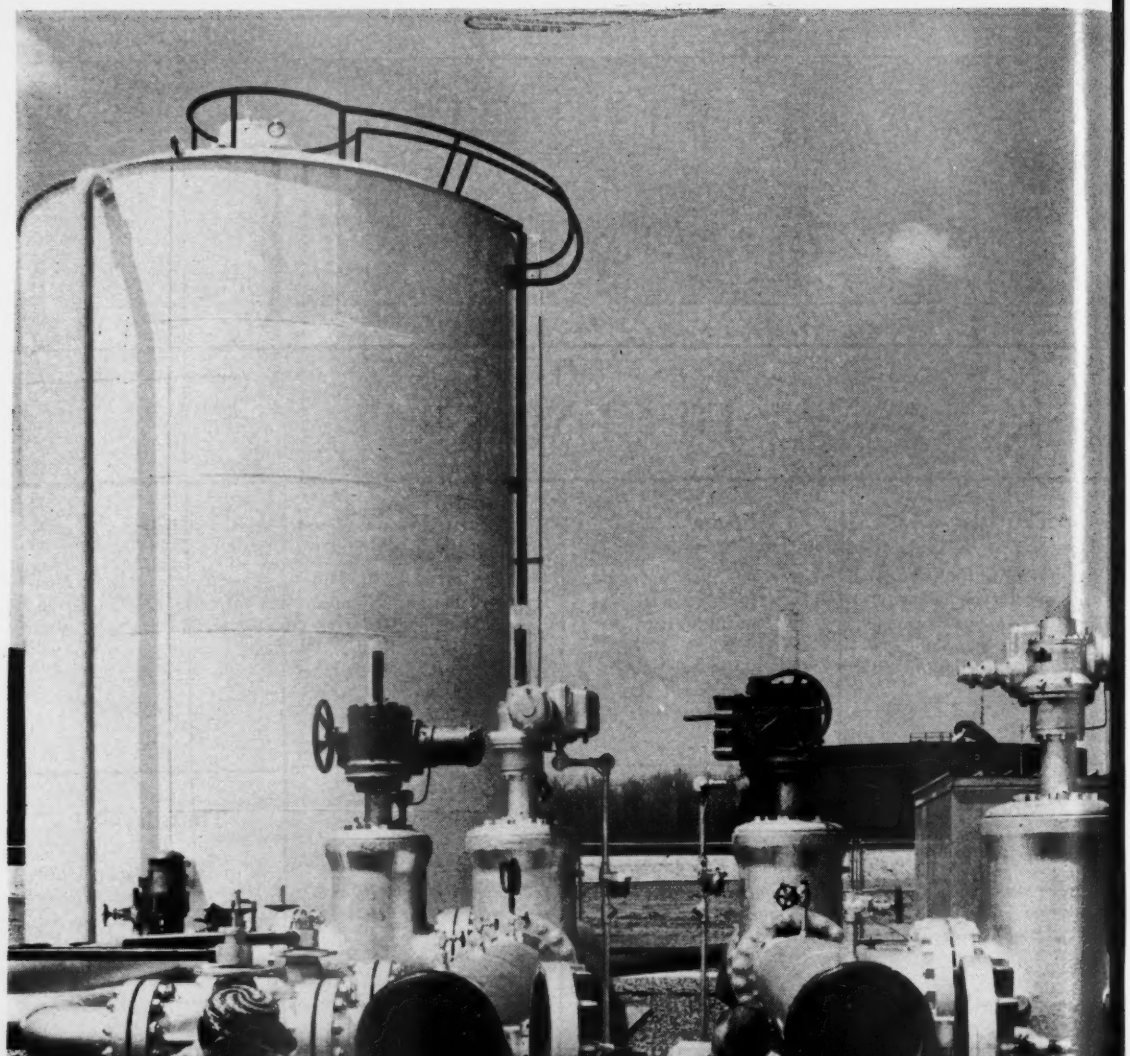
DECEMBER

Thursday—4 *Institute of Radio Engineers begins annual conference of the professional group on vehicular communications, Chicago, Ill.*	**Friday—5** *American Society of Mechanical Engineers ends six-day annual meeting, New York, N. Y.*	**Saturday—6** *Rocky Mountain Gas Association will hold annual meeting, Denver, Colo. Dec. 30.* ***Advance notice.***	**Sunday—7** *Institute of Appliance Manufacturers begins year-end meeting, Dallas, Tex.*
Monday—8 *Electric Companies Public Information Program, Steering Committee, begins meeting, Chicago, Ill.*	**Tuesday—9** *Oklahoma Broadcasters Association will hold winter meeting, Claremont, Okla. Jan. 17, 1959.* ***Advance notice.***	**Wednesday—10** *American Nuclear Society ends three-day annual meeting, Detroit, Mich.*	**Thursday—11** *Washington Public Utility Districts Association begins annual membership meeting, Seattle, Wash.*
Friday—12 *Advertising Association of the West will hold mid-winter conference, San Jose, Calif. Jan. 23-25, 1959.* ***Advance notice.***	**Saturday—13** *American Society of Heating and Air Conditioning Engineers will hold exposition, Philadelphia, Pa. Jan. 26-29, 1959.* ***Advance notice.***	**Sunday—14** *Annual Conference of Doble Clients will be held, Boston, Mass. Jan. 26-30, 1959.* ***Advance notice.***	**Monday—15** *Pennsylvania Electric Association, System Operation Committee, will hold meeting, Johnstown, Pa. Jan. 29, 30, 1959.* ***Advance notice.***
Tuesday—16 *Public Utilities Advertising Association, Region 9, will hold meeting, Portland, Ore. Jan. 29, 30, 1959.* ***Advance notice.***	**Wednesday—17** *American Gas Association will hold home service workshop, New Orleans, La. Jan. 29-31, 1959.* ***Advance notice.***	**Thursday—18** *Southwestern Legal Foundation will hold short course on oil and gas law, Dallas, Tex. Feb. 2-27, 1959.* ***Advance notice.***	**Friday—19** *National Telephone Co-operative Association will hold annual meeting, Washington, D. C. Feb. 6, 7, 1959.* ***Advance notice.***



The Floating Caboose

In the Little Big Inch pipeline (Texas Eastern Transmission Corporation), soft, durable synthetic rubber spheres act as effective partitions between different petroleum products flowing through it. The passing of the sphere marks the end of one "train" of products and the beginning of another.

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Capital Needs of Electric Power

By FRANKLIN H. COOK*

An analytical look at some past capital and debt relationships for steam, hydro, and purchasing-type utilities, large and small, along with ideas of what may happen under future deflation or continued inflation.

SINCE the end of World War II the electric power industry has more than doubled its plant investment from $15 billion in 1946 to approximately $36 billion in 1956. During that same period total capital stock outstanding moved from $6 billion to $12 billion, and long-term debt from $6 billion to $15 billion.[1] One writer believes that within the next four years spending by the electric power industry will triple from the present rate to $11 billion per year,[2] or a total of about $20.2 billion; 75 per cent will be spent by the private electric power industry, of which amount $10 billion will be in new money.

Increased demand by the formation of new households and the greater use of electricity by present users will produce the need for new plant and more capital. In 1957 there were 51 million households; by 1970 69 million households are predicted.[3] Many electric utilities are building their plant to supply the customer of tomorrow with summer air conditioning

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and winter warmth through the heat pump.[4] Such a home will use 12,000 to 20,000 kilowatt-hours annually.

Plant Investment and Costs

PUBLIC utilities have certain relationships between plant value and operating revenue and operational problems that are peculiar to the group. In the electric power industry this situation is especially true.

One of the basic generally recognized attributes of the electric power industry is the great amount of capital required for every dollar of operating revenue. In 1956 the typical purchasing utility, primarily consisting of a distribution system, showed $2.40 in plant investment for every dollar of operating revenue; the generating company that utilized steam, $4.20; and the hydroelectric concern, $6.30, Chart A (page 931). Also, in the industry the larger units,[5] and the larger companies are able to deliver power more cheaply to the consumer than the small enterprises, Table I.

TABLE I

AVERAGE COST PER KILOWATT-HOUR, 1955

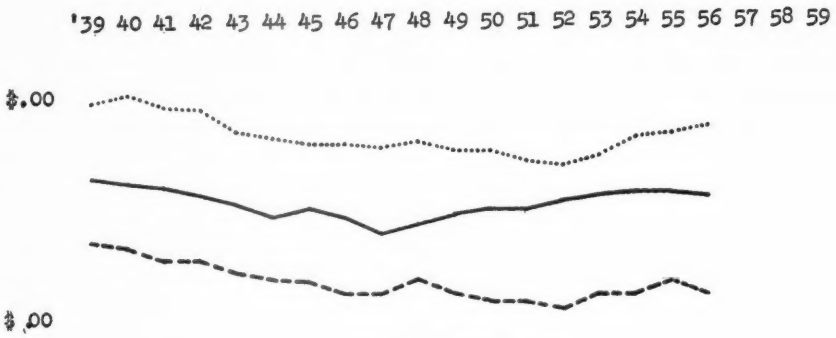
Size	*Purchasing*	*Steam*	*Hydro*
Small	2.5¢	2.	1.3
Medium	2.2	1.4	1.2
Large	2.	1.3	.9

Source: Federal Power Commission, *Statistics of Electric Utilities in the United States, 1955.* Figures represent medians for all electric companies in the United States securing their operating revenues solely from the sale of electricity. Subdivision on basis of size is according to operating revenue; on basis of type, according to source of over 50 per cent of power sold. These are not average selling prices, but represent total operating *revenue deductions divided by total kilowatt-hours sold.*

The present position of the electric power industry can best be appreciated and understood through a chronicle of its recent history. From 1925 to 1929 through the use of the holding company the industry generally was exploited in building up electric power empires. Prior thereto the recognition of the principle that electricity could be transmitted great distances at high voltages made it feasible to tie together the many small generating plants operating in individual cities. In many instances the original value of these plants was inflated by the sale and resale of the operating properties from one company to another. The financial crash of 1929, with the consequent exposure of much of the disorder in the financial structure of the electric power industry, stopped the merging of the small units into the large. From 1933 to World War II few new utilities were promoted, for in this period approval in many cases had to be secured from both the Federal Power Commission and the Securities and Exchange Commission.

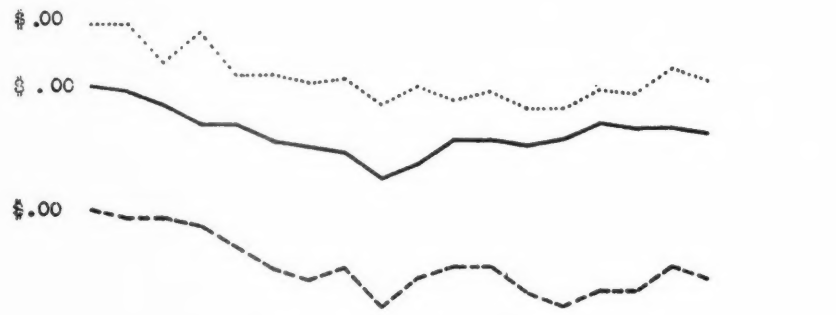
DURING these years the electric power industry was in the process of getting its house in order by accumulating surpluses against which to write off the capital plant adjustments that had to be made at the direction of federal authorities. Some new plant equipment was acquired. But the war years found the electric power industry compelled to use its existing facilities to maximum capacity, including the old equipment which was more costly to operate. Maintenance had to be curtailed because of shortage of personnel and supplies.

Consequently, the end of the war found a dammed-up demand for new power equipment by an industry that was in a sound position to finance the purchase of such assets, and an investing public—chiefly the life insurance companies—that desired the securities of the electric power field.



PLANT INVESTMENT
(Total Utility Plant / Operating Revenue)
Purchasing ----- Steam ——— Hydro .....

Chart A*



CAPITAL STOCK AND LONG-TERM DEBT / OPERATING REVENUE
Purchasing ----- Steam ——— Hydro .....

Chart B**

*Source: Cook, Franklin H., "Significant Ratios in the Electric Power Industry", Bulletin #59, Bureau of Business Research, College of Business Administration, The Pennsylvania State University, 1958; Chapt. B, p10.

**Source: Cook, Franklin H., "A Financial Ratio Analysis of Electric Power Companies", in process of publication, Bureau of Business Research, College of Business Administration, The Pennsylvania State University.

Postwar Developments

SINCE the end of the war the industry has doubled its plant investment, and its capacity, principally in the use of larger generators, over 100,000 kilowatts.[6] This construction was done with a 25-cent dollar in terms of purchasing power prior to World War I.[7] During the last fifteen years there has been an increase in productivity. Costs have declined in the use of coal, 33 per cent; 25 per cent reduction through the use of larger generating plants; and a 20 per cent decrease through the improvement of the load factor.[8] The generating plant rated most efficient by the industry in 1950 was in eighth place in 1955.[9] The industry shows real productivity in that in 1956 output was up ten per cent, but the number of employees increased only one per cent; fuel, seven per cent; maintenance, five per cent; revenues, nine per cent; and dividends, seven per cent.[10]

Looking Ahead

THE electric plant of the future will be more efficient than the electric plant of today. This is a general statement, and as a general statement is true. However, the impact of an expanding population will have different effects upon the company with old equipment, the concern with new equipment, the utility that buys its power at wholesale, then retails it, the enterprise that generates its energy by steam, and the one that utilizes hydraulic forces of nature to supply its power.

The utility with old equipment which will require replacement, presently has low annual depreciation charges in comparison with similar charges on new equipment, high maintenance costs, and because of technical inefficiency in a ten to twenty-year-old plant, general overall higher costs. When this plant is replaced, maintenance costs will drop, but depreciation charges will increase because of the higher price for the new equipment; also, there will be added financial outlays for interest. The concern that now possesses new equipment with excess capacity will have higher depreciation costs as indicated. However, since depreciation is a fixed cost, this charge per kilowatt-hour can be reduced by greater use of the reserve capacity.

THE utility that consists chiefly of a distribution system does not have the problem of obsolescence that faces the generating enterprise. Therefore, its future cost picture is chiefly one of recapturing present outlays for line expansion or replacement. There are not the possibilities of cost reduction potential possessed in the production equipment of the generating utility.

So it is conceivable that among the hundred or more electric companies in the United States that purchase power for resale there may be some that are expanding or replacing distribution equipment and in the future will operate on a higher plateau of costs. These costs can be reduced only by increasing demand within the framework of the purchasing company's contract with its supplier; or by changing the terms of the contract with the supplier. Such change, however, is dependent upon the ability of the supplying generating company to meet its own demands and those of the distribution concern.

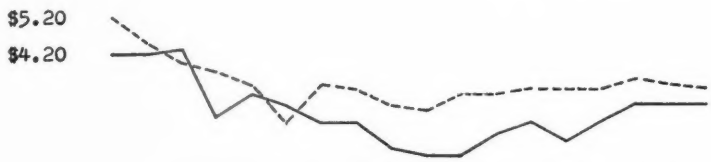
THE generating company with 40 per cent of its assets tied up in production

39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61

CAPITAL STOCK AND LONG-TERM DEBT / OPERATING REVENUE -PURCHASING
Small ——— Large -----

Chart 1

Source: Ibid.



CAPITAL STOCK AND LONG-TERM DEBT / OPERATING REVENUE -STEAM
Small ——— Large -----

Chart 2

Source: Ibid.

CAPITAL STOCK AND LONG-TERM DEBT OUTSTANDING / OPERATING REVENUE - HYDRO
Small ——— Large -----

Chart 3

Source: Ibid.

plant if a steam utility, and 50 per cent, if a hydro company,[11] is in position to achieve decreases in costs through the employment of larger and more efficient generating equipment. At the present time it takes .93 pounds of coal to generate a kilowatt-hour; there is possibility that in the near future generators will require only .6 pounds per kilowatt-hour.[12] Atomic energy will enter the power industry as a replacement of the fossil fuels under the boilers that generate steam.[13] The remainder of the equipment will be unaffected by the atomic changeover. Therefore, the use of fission fuel will penetrate the power industry through the steam-generating companies, rather than the purchasing and the hydro utilities. Naturally, it will be considered competitively first by those utilities that are farthest from their fuel supply.

Security Financing

UNITED STATES industry secures capital for new plant from outside sources and internal funds. For the entire industry of the United States in the period between 1946-55 $22 billion was secured through bonds and mortgage loans, about $55.5 billion by new security issues, both external sources; $89 billion from retained net income and depletion; and $89.2 billion from depreciation and amortization. Internal sources supplied over two-thirds of the capital requirements; depreciation reserves, over one-third.[14] The private electric power industry will not finance this percentage of its expansion from internal sources. Ten billion dollars of the $15 billion required by the industry within the next four years will be new money.[15]

Within the next decade industry as a whole will require $375 billion in new capital. Roughly 16 per cent, or between $40 and $80 billion will be supplied by equity securities.[16] Between 1940 and 1956, inclusive, of the $23 billion raised by the electric power industry in new securities, 29 per cent or $6.5 billion was obtained through the issuance of common and preferred stock.[17] During the last five years 20 per cent of the aggregate of capital required by the electric power industry has been obtained through common stock issues.[18]

Curiously, from 1940-47, inclusively, slightly over one billion dollars of securities were issued for new capital, and $6.5 billion for refunding, roughly a ratio of $6 in refunding for every dollar of new capital; each year refunding dollars exceeded new capital. But in 1948 the trend changed, for each of the following years new capital requirements exceeded refunding, yielding for the period of 1948 to 1956 almost $14 billion for new capital and one and a half billion for refunding, or $8 for new capital and $1 for refunding.[19]

THROUGH medians Chart B (page 931) demonstrates the capital requirements in terms of operating revenue for the three types of companies, purchasing, steam, and hydro, from 1939 through 1955. Note how technological efficiency and greater use of internal funds have driven the curve down from 1939. At that time the hydro generating concern had approximately $6 in long-term debt, common and preferred stock outstanding for every dollar of operating revenue; by 1955 this figure had been reduced to $4.60. The steam company had an 80-cent drop, from $4.20 to $3.40.

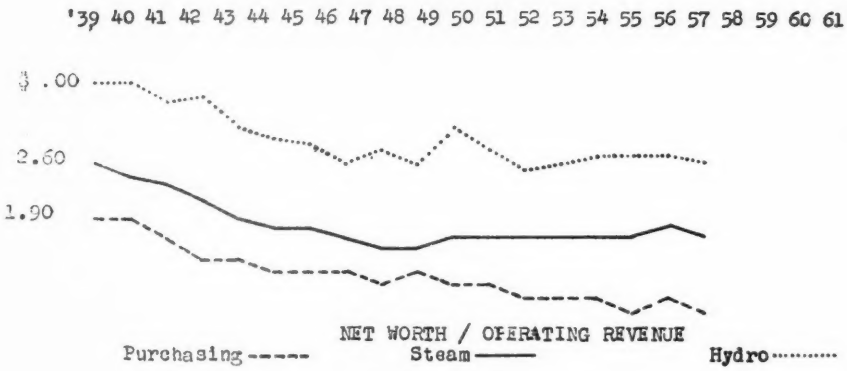


Chart C

Source: Ibid.

Observe that in 1948 when there was an increase in financing the line rose and leveled off, indicating that there is still plant expansion that has not resulted in a corresponding increase in operating revenue.

Charts 1, 2, and 3 (page 933) illustrate that as between the large and the small company of each type, the small concern has less securities outstanding than the large. To some degree these phenomena are related to total utility plant investment, for the large units tend to have a greater plant investment, for every dollar of operating revenue, than the small. But of equal importance is the tendency of the small concern to prefer short-term credit in its financing. This practice is typical of all small enterprises throughout the United States.

In competitive industry overtrading or undertrading is measured by the ratio of net worth to operating revenue. If this ratio were too low, it would mean that a company did not possess sufficient net worth to cushion a decline in operating revenues; on the other hand, if it were too high, it would indicate that the company was not making adequate use of its capital.

'39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61

NET WORTH / OPERATING REVENUE - PURCHASING

Small ——— Large -----

Chart 4

Source: Ibid.

NET WORTH / OPERATING REVENUE - STEAM

Small ——— Large -----

Chart 5

Source: Ibid.

NET WORTH / OPERATING REVENUE - HYDRO

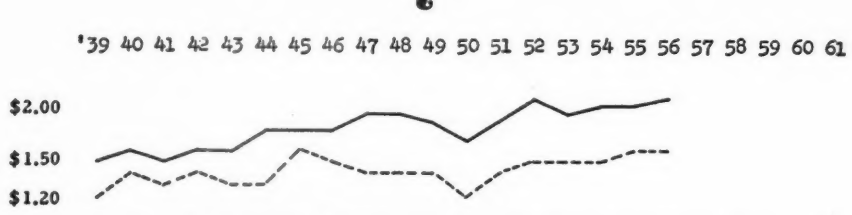
Small ——— Large -----

Chart 6

This ratio is similar to the former of long-term debt and capital stock outstanding to operating revenue, except that it substitutes earned surplus for long-term debt.

Charts C (page 935), 4, 5, and 6 (page 936) show that this ratio has been declining since 1939 through 1955. The hydro company has decreased from $4.20 to $2.70, a drop of $1.50; the steam, 80 cents, from $2.60 to $1.80; and the purchasing from $1.90 to $1.20, 70-cent decline. This diminishment in the ratio of net worth to operating revenue means that although earned surplus has increased for these companies, during this period the increase in operating revenue has been significantly greater when measured in terms of capital stock and earned surplus. The general decline in the ratio shows an industry-wide more efficient use of net worth capital.

There are no conclusions that size affects this ratio, except that there may be a presumption that the small purchasing and small steam company have a lower ratio than the large, and that conversely for



DOLLARS IN UTILITY PLANT FOR EVERY DOLLAR OF CAPITAL STOCK AND LONG-TERM DEBT OUTSTANDING - PURCHASING

Small ——— Large -----

Chart 7

Source: Ibid., Chart 15, p45.

DOLLARS IN UTILITY PLANT FOR EVERY DOLLAR OF CAPITAL STOCK AND LONG-TERM DEBT OUTSTANDING - STEAM

Small ——— Large -----

Chart 8

Source: Ibid., Chart 16, p45.

DOLLARS IN UTILITY PLANT FOR EVERY DOLLAR OF CAPITAL STOCK AND LONG-TERM DEBT OUTSTANDING - HYDRO

Small ——— Large -----

Chart 9

Source: Ibid., Chart 17, p45.

the hydro concerns, the small unit has a greater ratio than the large.

Demand for Utility Securities

EVEN during the thirties, when utility companies were under government suspicion, a great demand for securities of utilities existed. Currently, the institutional investor finds all the securities of the electric power company desirable. Generally, institutional investors, particularly the life insurance companies, dominate the corporate debt and preferred stock market in the United States. In the past the yield on these securities has been low, but since it was greater than on government bonds, pension funds and institutional investors bid against one another, lowering the return. There has been a tendency on the part of government and corporations to avoid the market in placing their securities.[20]

In 1954 life insurance companies held 60 to 65 per cent of all bonds of private utilities: electric, gas, telephone, and water companies.[21] They have also been increasing their holdings in the common stock of gas and electric companies. Preferring capital gains under the present tax laws, individuals tend to avoid common stocks of the electric power field, which do not offer protection against inflation,[22] but which are good defensively in a falling market.

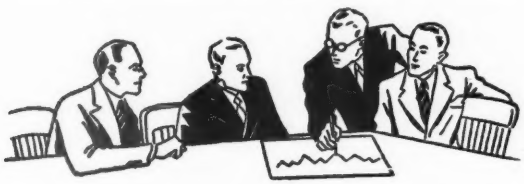
USING norms of fifteen times earnings for the price and a yield of 4.8 per cent, investors have turned to public utility holding companies as the preferred security for their funds. The top six securities held by investment trusts are holding companies: General Public Utilities, Central and South West, Texas Utilities, American Electric Power Service, Southern Company, and Middle South Utilities.

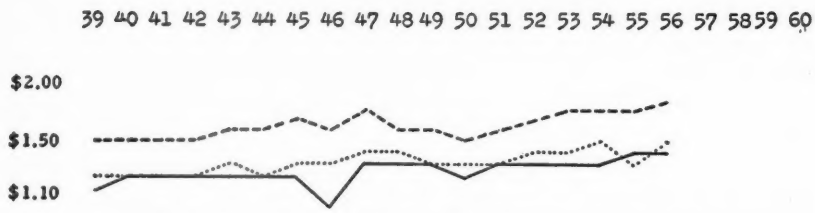
There are three reasons advanced for the popularity of the stocks from the standpoint of security and certainty of earnings: (1) Diversification—the operating companies serve different types of territories, such as predominantly rural, residential, or industrial; and the companies are subject to different regulatory authorities. (2) Size—economies are obtained from mass building, planning, and operating. (3) Management—there is increased management efficiency through the pooling of ideas.[23]

THE ratio of total utility plant to par value of capital stock, common and preferred, and long-term debt outstanding demonstrates the improvement in the financial position of the electric power industry since 1939. Between 1939 and 1956 for all three types of companies there was an increase in the value of total utility plant behind the par value of outstanding external securities.

An examination of Chart D (page 939), and Charts 7 to 9 (page 937), inclusive, signifies that the companies with the lowest plant value behind their outstanding debt and equity capital are the concerns with the highest operating revenues. This is true on Chart E (page 940), where the steam company is low. Note that the small steam and the small purchasing company have the best ratios for their particular types.

However, there is a great difference between the two. The small purchasing enterprise has high earnings on its capital stock and long-term debt outstanding, whereas, the small steam company does not. Since the late forties both of these





DOLLARS IN UTILITY PLANT FOR EVERY DOLLAR OF CAPITAL STOCK AND LONG-TERM DEBT OUTSTANDING

Purchasing ----- Steam ——— Hydro .....

Chart D

Source: Cook, Franklin H., "Significant Ratios in the Electric Power Industry," loc. cit. Chart F, p20.

companies have shown respectable earned surplus accounts.

Future Financing Prospects Bright

THE demand for the capital issues of the electric power industry demonstrated since 1948 is evidence that the companies in this area will operate in a favorable atmosphere when seeking new money to finance the annual increase of more than ten million kilowatts, required by our economy. Between 1945-55 the industry showed a 130 per cent increase in revenue, a similar upturn in net income, but earnings on common stock rose by 150 per cent.[24]

A better picture of earnings for the electric power industry can be discerned in Charts E, 10, 11, and 12. In Chart E (page 940) the purchasing concern has the highest earnings on the par value of all capital stock and long-term debt outstanding; the hydro utility, the lowest; with the steam enterprise occupying the middle position. Earnings here have a converse relation to plant investment; for the purchasing electric company has the lowest plant investment per dollar of operating revenue, the steam-generating concern maintains a midposition, and the hydro enterprise is highest.

THIS same emphasis upon size of utility plant and consequent capital structure appears in Chart 10 (page 941), demonstrating earnings according to size of plant. Herein the small purchasing company with the lowest plant investment has greater earnings than the large. Note that among the steam utilities in Chart 11 (page 941), it is the medium-size company that has better earnings than the large company. Is it possible that a company can get too large? Such may be the case. How-

ever, in examining Chart E observe that the returns for all three types of companies in 1956 are approximately what they were in 1939. For example, the earnings for the steam company started at 7 per cent in 1939 and ended with 7 per cent in 1956. Beginning with their capital expansion in 1947 the earnings have steadily gone down for the steam companies, turning upward in 1954.

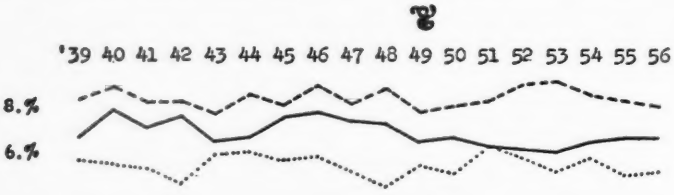
This is particularly true with the large steam concern, Chart 11. Since according to Chart B and Chart 2 the capital stock and long-term debt outstanding to every dollar of operating revenue is still expanding for the steam enterprise as a whole and particularly for the large steam company, any increase in earnings must come from increased efficiency of the new plant constructed by the issuance of the new securities. However, it may be that the continued addition of new plant may hold down earnings for yet a little while.

Inflation or Deflation

THE management of an electric power company is not primarily concerned as to whether over the entire history of the United States the trend of prices has been upward or downward. What is of chief interest to it is whether within the next twenty-five years, the approximate life of equipment purchased today, there will be inflation or deflation, or both. To be caught by a fall off in demand with high-priced equipment, yielding economies at near peak production, and having a large reserve capacity, is not the desire of any management. In the United States inflation has followed wars. Although the general trend of prices may be upward, years of downward drift of prices exceed years of upward swing by two to one. The crucial problem to be resolved is when do prices start downward after the Korean War?

There are authorities who argue that inflation is here to stay,[25] and that there is no possibility of a major recession or depression in the future because (1) of the size and permanence of the federal debt; (2) the strong and positive commitments of the federal government to combat recessions; (3) and the improbability of the reduction of wage rates.[26]

On the other hand, a downward turn could come from two possible sources: (1) a psychological crisis in the international or national economic or political areas; (2) a positive policy of the federal government to promote deflation through



NET OPERATING REVENUE / TOTAL CAPITAL STOCK AND LONG-TERM DEBT OUTSTANDING

Purchasing ----- Steam——— Hydro.....

Chart E

Source: Cook, Franklin H., "A Financial Ratio Analysis of Electric Power Companies," loc. cit.

the use of powers and tools presently residing within that body.

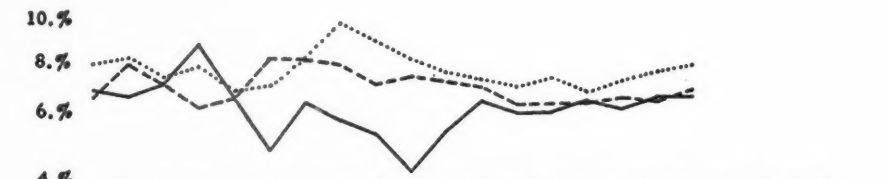
SINCE the greatest expansion of the electric power industry has occurred within the last eight years, the electric power industry in terms of a great decline in prices would have high-cost equipment. In the securities market the issues of electric power concerns are considered good defensively. The down turn in business in 1949, 1954, and 1957 was scarcely perceptible in the electric power field. However, the effect now upon the electric power companies of a down turn of prices would differ according to whether it was

NET OPERATING REVENUE / TOTAL CAPITAL STOCK AND LONG-TERM DEBT OUTSTANDING- PURCHASING

Small——— Large-----

Chart 10

Source: Ibid.



NET OPERATING REVENUE / TOTAL CAPITAL STOCK AND LONG-TERM DEBT OUTSTANDING - STEAM

Small——— Medium ..... Large-----

Chart 11

Source: Ibid.

NET OPERATING REVENUE / TOTAL CAPITAL STOCK AND LONG-TERM DEBT OUTSTANDING - HYDRO

Small ——— Large-----

Chart 12

Source: Ibid.

a purchasing company or a generating utility. Generally, earnings of a purchasing type of utility whose equipment chiefly consisted of distribution facilities, would be least affected by a drop in the economy.

This type of utility ordinarily has a high percentage of its revenue coming from residential customers: In 1955, 42 per cent for the purchasing company; 35 per cent for the steam; and 33 per cent for the hydro. Since its income will suffer no great decline, and any increased depreciation or interest costs from new distribution facilities may be equalized by a decrease in variable expenses, the investor in the purchasing company would be assured of a steady income during a recession.

THE generating company with reserve capacity installed at high costs during the past half-dozen years would be the most vulnerable in a downward spiral of prices. Because recent additions have been primarily steam plants—inasmuch as most of the hydro sites have been used and demand very quickly exhausts the capacity of a hydro plant, compelling it to rely upon steam for power—the steam utility is the type of generating plant that would be most likely to have reserve equipment. In 1955 the typical steam company secured 51 per cent of its total revenue from commercial and industrial customers, compared with 39 per cent for the purchasing company, and 36 per cent for the hydro. Thus present excess capacity in a steam plant, plus a decline in the industrial load, would really affect the earnings of a steam electric company.

ON the other hand, if continued expansion is in prospect, the purchasing company should continue to prosper. The only negative forces would be the rise of variable costs under the rigid price of power established by the regulatory authorities. This increase in costs may result in inability to supply the service demanded and an overloading of equipment and deterioration in quality of service.[27]

The generating utility will have to contend with the same increase in variable costs, wages, and supplies, but as a result of increasing demand and technological efficiency may be able to wipe out such expense increases. Since it is momentarily impossible to determine whether continued inflation or deflation is around the corner, the utility that is prepared for either is in the best position. Such utility will have a good area development program; it will be interested in promoting electric house heating, preferably through the heat pump, which would assure it of a large year-round residential load.[28]

Summary

Plant Investment and Operating Costs

INCREASED households and greater use of electricity-consuming appliances and equipment will increase demand.

Since 1948 electric power companies have been increasing plant investment, tending to use larger generators and transmission lines.

Ordinarily, generating companies have lower costs per kilowatt-hour than purchasing concerns; large companies than small.

Expansion and Security Financing

IN financing expansion the electric power industry does not make as great use of internal funds as does United States industry generally.

In 1956 the electric power industry used less external funds to produce a dollar of operating revenue than in 1939; the relationship of net worth to operating revenue has also been declining—both trends indicate a more efficient use of capital.

Small companies tend to use less external funds than do the large.

Since 1939 the value of total utility plant behind outstanding capital stock and long-term debt has been increasing.

Earnings on capital stock and long-term debt for the median purchasing, steam, and hydro concern have remained approximately the same as in 1939.

Effects of Inflation and Deflation

In event of either economic recession or expansion the purchasing company should produce good earnings, particularly the small enterprise.

However, the generating company with unused plant capacity and a heavy industrial load would fare badly in event of a recession, but profit from an expanding economy.

Footnotes

[1] Federal Power Commission, *Statistics of Electric Utilities in the United States, 1956.*

[2] "Electric Utility's Future," by H. R. Frankel, *Commercial and Financial Chronicle,* 185:12, 13, January 3, 1957, p. 12.

[3] *Ibid.*

[4] American Electric Power Service Corporation is constructing 330,000-volt transmission systems, 43 per cent higher than highest standard U. S. voltages; it is also building two 430,000-kilowatt generators, 73 per cent larger than world's largest operating units today; and it has the first "super critical" boiler operating at pressures above 3,206 p.s.i.

[5] "Capital Cost and Fair Return," Part I, by J. Rhoads Foster, PUBLIC UTILITIES FORTNIGHTLY, Vol. 53, No. 5. March 4, 1954, pp. 267, 281.

[6] Federal Power Commission, *op. cit.,* p. xxxv. Generating capacity for class A and class B electric utilities in the United States increased from 40 million kilowatts in 1946 to 91 million kilowatts in 1956.

[7] Foster, *op. cit.* p. 344.

[8] "The Outlook for Electric Utilities," PUBLIC UTILITIES FORTNIGHTLY, Vol. 59, No. 6, March 14, 1957, p. 395.

[9] "How to Get Ahead in the Utilities Industry," *Business Week,* June 16, 1956, pp. 66-6.

[10] F. S. Black, *op. cit.*

[11] Median for all companies of each type in United States receiving operating revenue from sale of electric energy.

[12] "Favorite Port in a Storm," *Business Week,* February 23, 1957, pp. 125, 126.

[13] "Atomic Energy and the Power Industry," by Franklin H. Cook, PUBLIC UTILITIES FORTNIGHTLY, Vol. 57, No. 9, April 26, 1956, pp. 594-600.

[14] "Corporate Uses and Sources of Funds," *National City Bank Letter,* March, 1956, p. 31.

[15] H. R. Frankel, *op. cit.*

[16] "Equity Financing for the Small Firm," by R. A. Weaver, Jr. *Harvard Business Review,* 34:91, March, 1956.

[17] "Security Sales by Electric Companies, 1940-1956," *Electrical World,* 147:129, January 28, 1957.

[18] "Dividend Policy and Reduction of Tax Liability," by Fred P. Morrissey, PUBLIC UTILITIES FORTNIGHTLY, Vol. 59, No. 1, January 3, 1957, p. 15.

[19] *Electrical World, op. cit.*

[20] "Structure of the American Capital Market," by J. B. McFerring, *Southern Economic Journal,* 21:247-60, January, 1955.

[21] "Inflation and Utility Financing and Regulation," by Fergus J. McDiarmid, PUBLIC UTILITIES FORTNIGHTLY, Vol. 59, No. 1, January 3, 1957, p. 15. 881, 883.

[22] "Institutional Buyers Gain; Individual Investors Drop as Holders of Utility Securities," by H. H. Young, *Electrical World,* 146:64, November 19, 1956.

[23] "Out of the Doghouse: Utility Holding Companies Have Regained Investment Stature," *Barron's,* 36:11, September 17, 1956.

[24] "New Appraisal of the Electric Utility Industry," by H. Quinton, *Commercial and Financial Chronicle,* 84:1849, November 1, 1956.

[25] Fergus J. McDiarmid, *op. cit.*

[26] "Cost of Capital in Public Utilities," by L. W. Thatcher, *Land Economics,* 30:102-3, May, 1954.

[27] "Capital Cost and Fair Return," Part II, by J. Rhoads Foster, PUBLIC UTILITIES FORTNIGHTLY, Vol. 53, No. 6, March 18, 1954, pp. 340, 355.

[28] "The Outlook for Public Utilities," *op. cit.*

The Impact of Inflation on Earnings

By PAUL C. MATHIS*

Will continued inflation eventually squeeze stockholder-investors in electric utilities? Or will improved technology and increased consumption offset price rises and stable rates of depreciation? Will higher dividends be sought?

MANY farsighted businessmen are greatly concerned about the possibility of a continuance of our past trend of inflation into the future, particularly during the next twenty or thirty years. Electric utility investors, managers, and economists are particularly concerned about inflation, because the electric power industry is expanding output rapidly. It is felt that the combination of a growth industry, government regulation, and inflation may lead this industry and the nation into a serious predicament.

The managers of electric utilities are very much aware of the problems of price level inflation. One practical question which concerns the ability of utility managers to raise money for expansion is this: Do present depreciation rates squeeze equity investors in the electric utility industry? Believing that the investors are being squeezed, some public accountants and many businessmen argue that profits are grossly overstated, and capital is being taxed instead of income, because accumulated depreciation will fall short of the cost of replacing worn-out facilities. On the other hand, many public accountants and business executives do not believe that it would be desirable to make charges to depreciation on a basis which substitutes replacement cost for actual cost of fixed assets.

Inflation's Effect on Investors

RECENT history will give us some answers to the question of the effects of inflation. The price level has been rising since the 1930's, and so the first question is whether or not stockholders of utilities have been squeezed by stable depreciation rates since the thirties. The question is important, because if stockholders have been harmed and are being harmed by continuing inflation, it will become increasingly difficult for the electric industry to secure funds in order to expand capacity at the rapid pace of the past

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twenty years. A crisis may be brewing, therefore.

Whether utility investors have suffered from depreciation practices is a question not easily answered. For instance, in analyzing historical data so as to determine whether the actual cost of replacement of plant during a given year has been covered by past depreciation charges on that plant, the following minor problem rises immediately: Since the value of plant of electric utilities includes the gas departments of some companies in earlier years, whereas the gross construction expenditures are of the electric departments only, exact calculations involving both sets of figures cannot be made from the Edison Electric Institute data. Fortunately, however, such exact calculations are not in this case necessary in arriving at reasonable conclusions from the following data:

THE electric utility industry uses a 33-year average depreciation period, and so most replacement during the 1950's might be expected to be of facilities constructed in the period of the 1920's. Costs in the 1950's are from double to triple those of the 1920's. Previously allowed depreciation, therefore, would fall short of replacement cost of *identical* plants by considerable amounts; but the old plants were not, in fact, replaced by identical plants.

Considerable technological improvements in plant and distribution systems have taken place during the past thirty-three years. Coal consumption per net kilowatt-hour is less than 40 per cent of what it was in 1922, for example. Furthermore, the efficiency (earning power) of transmission systems has been improved by greatly increased consumption per customer during the past thirty-three years. As a matter of fact, the undepreciated value of utility plant[1] increased $6.3 billion in the period 1922-27, or an average of $1.2 billion per year, whereas replacement expenditures[2] of $474 million in 1955, of $323 million in 1954, and of $219 million in 1953 indicate either that the replacement facilities cost less, or that depreciation rates were too high, on the average, for equipment installed in the 1920's. The investors were pleasantly surprised, in other words.

Future May Be Different

THE problem of replacing low-cost electric facilities with high-cost ones may be greater in the future, when the construction of the 1930's begins to need replacement in the late 1960's and early 1970's. The construction of $2.09 billion which took place in the period 1933-39 can be treated, however, entirely as replacement of early plant, since the undepreciated value of plant *declined* from $14.37 billion in 1932 to $14.11 billion in 1939. During this period of 1932-39 the installed electric-generating capacity increased by 1.9 million kilowatts, which shows that the replacement plant, although smaller in dollar value, was more efficient. During this period of 1932-39, depreciated plant value also decreased, in the amount of $877 million.

To the extent that this decrease in book value of plant does *not* represent an increase in the average age of plant compo-

[1] Including gas departments of some utilities.

[2] Of electric departments only. Electric plant (undepreciated) constituted 90 per cent in 1955, 88 per cent in 1940, 72 per cent in 1940, and 69 per cent in 1937 of total undepreciated plant of the electric utilities. The change in percentage is partly due to the replacement of manufactured gas by natural gas in recent years.

nents by 1939, it *does* represent a saving in cost of construction of the replacement facilities below the original plant cost many years before. The entire $877 million reduction in plant value may represent such savings in the $2.09 billion construction replacement program during the 1930's, or a saving of over one-fourth of the original cost of plant being replaced.

The plant construction of the 1930's depression period was replacement of old, less-efficient plant which was probably built at substantially higher cost per kilowatt-hour before World War I. In the late 1960's and early 1970's there will be a second round of replacement, and at prices not much above the cost of the original plant built from 1900 to 1910, in terms of efficiency of plant. Of course, this forecast allows for only moderate increases in construction costs above their present levels.

What Happened to Investors

As an offset to inflation, plant efficiency has definitely increased over the years, in part due to increased electric

Depreciation Rates and Inflated Prices

"TO date . . . electric company stockholders as a group have **not** been squeezed by stable depreciation rates in the period of rising price levels since the mid-1930's. Improved technology and a substantial increase in depreciation reserve percentage have offset higher plant replacement costs. The next question is whether stockholder-investors will be squeezed in the future by further increases in electric plant replacement costs. Barring governmental action to allow utilities to set up special depreciation reserves as an offset to increasing construction costs, no further increase in depreciation reserve percentage is in sight. In fact, a downward trend in reserve percentage began in 1948."

consumption per customer. A further increase in efficiency may also be expected from future growth in power consumption per customer. It appears, therefore, that the group of investors who bought stock in electric companies before 1930 has not yet suffered from inadequacy of depreciation charges in the inflationary period of the 1940's and 1950's; and this group may not even suffer in the future if load per customer grows, if technology improves, or if construction costs stabilize.

The experiences of more recent investors can best be analyzed by the decade in which they bought. In general it can be said that there was no new stock issued for plant expansion by the electric industry as a whole in the decade of the 1930's. New investors merely bought stock from the older investors, and this transfer of ownership does not conceal the point previously made that 100 shares of stock issued in the 1920's had not suffered any erosion of value by the 1950's on account of depreciation rules. There is, accordingly, no problem of new stockholders of the 1930's suffering from the inflation of later years.

THE remaining group which may have suffered from any inadequacy in charges to depreciation, therefore, are only the investors who bought new stock in the inflationary period of the 1940's and 1950's, during which period the electric plant capacity expanded greatly. There was an increase of $1.05 billion in electric company stock outstanding during the decade 1941-50, at a time during which depreciation reserves increased from 13 per cent of plant value to 20 per cent. It is quite contrary to expectations to find such a large increase in percentage of plant carried as depreciation reserve over a long period of rapid expansion.

In the period 1951 through 1955 there was a further increase of $2.8 billion in electric company stock outstanding, but depreciation reserves declined slightly to 19 per cent of plant value. The large percentage increase in depreciation reserve since 1940 is significant, because it has offset the doubling of construction costs during the 15-year period, so far as protection of stockholder investment in terms of "real" values is concerned. Not even the new investors of the 1940's and 1950's have yet suffered from depreciation practices.

To date, then, electric company stockholders as a group have *not* been squeezed by stable depreciation rates in the period of rising price levels since the mid-1930's. Improved technology and a substantial increase in depreciation reserve percentage have offset higher plant replacement costs.

The next question is whether stockholder-investors *will* be squeezed in the future by further increases in electric plant replacement costs. Barring governmental action to allow utilities to set up special depreciation reserves as an offset to increasing construction costs, no further increase in depreciation reserve percentage is in sight. In fact, a downward trend in reserve percentage began in 1948.

Efficiency May Offset Inflation

IT is possible that substantial improvements in technology will offset an inflationary increase in plant construction costs. Although fuel costs have begun to rise as a percentage of production costs,

atomic power may reduce such operating expenses within a few decades.

Another offset to inflationary increases in construction cost is seen in further increases in number of customers and consumption per customer which seem likely. This increased density and consumption mean increasing efficiency of production, transmission, and distribution through the economies of large-scale operation. In terms of production cost, for example, large generating units are more efficient than small ones; and in terms of transmission and distribution cost, higher voltage lines are more efficient than lower voltage.

LOOKING ahead a few decades, therefore, it can be said that as long as the electric industry continues to be a growth industry, problems of constant depreciation rates in the face of moderate inflation may well be overcome by improved technology and decreasing average cost of production as the industry expands. If these factors are insufficient to overcome the problems of inflation, potential stockholder-investors will begin to estimate the amount by which depreciation allowances fall short of replacing plant, and will hold out for higher dividends in order to make up the difference. This will force rate-making bodies to choose between the alternatives of allowing special charges to depreciation or of breaking away from the tradition of holding down returns to around 6 per cent on the investment.

"OUR government was an experiment in securing to a people the maximum of individual freedom. And the human spirit has blossomed in independence and self-respect. It brought America to a greatness unparalleled in the history of the world.

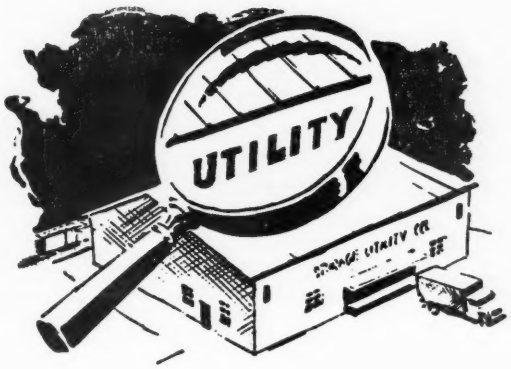
"Amid the scene of vastly growing complexity of life we must preserve the independence of the individual from the deadening restraints of government, yet by the strong arm of government equally assure his fair chance, his equality of opportunity from the encroachments of special privileges and greed or domination by any group or class.

"We must not be misled by the claim that the source of all wisdom is in the government. Wisdom is born out of experience, and most of all out of precisely such experience as is brought to us by the darkest moments. It is in meeting such moments that are born new insights, new sympathies, new powers, new skills. Such conflicts as we are in the midst of today cannot be won by any single stroke, by any one strategy sprung from the mind of any single genius. Rather must we pin our faith upon the inventiveness, the resourcefulness, the initiative of every one of us. That cannot fail us if we keep the faith in ourselves and our future, and in the constant growth of our intelligence and ability to co-operate with one another.

"The memory of Americans who glory in Valley Forge even as they glory in Yorktown tells us the truth which echoes upward from this soil of blood and tears, that the way to the nation's greatness is the path of self-reliance, independence, and steadfastness in time of trial and stress."

—HERBERT HOOVER,
Former President of the United States.

How People *Feel* About Utility Companies . . .



. . . Maybe not the way most of us think. Customers have "images" of utility concerns, management has images of the customers—both probably out of focus. A new survey tool, Motivation Research, is used to correct such images—might be useful to utilities.

By JAMES H. COLLINS*

To see ourselves as others see us! If Robert Burns were alive today, any sophomore could tell him, "What you've really got there, Mr. Burns, is a motivation research project."

This is a recently developed survey technique with an unhandy name, usually abbreviated to "MR."

Business concerns are already spending money with their consultants to obtain what are called "images" of their products and themselves, for the improvement of advertising, selling, production, hiring. It has helped GE sell motors, helped industrial salesmen face purchasing agents. It may have possibilities for utility companies.

Utility management is taking great pains to stand well with people. It has some kind of mental picture of itself, as it thinks people may be thinking about it. Nicely colored. Management believes that, with all its postwar problems, it is doing a good job, that the customers ought to applaud. And it also has a picture of the customers as it thinks they are, intimately informed on company affairs, maybe a bit sensitive about rates.

THESE images are undoubtedly wrong, and motivation researchers make their particular kind of survey, to get more accurate images, and offer suggestions for utilizing them. Often, the corrections are easily made. Better images of customers and company lead to improvements in sales, advertising, and production.

This country had a vivid example of a cockeyed image until the Russians launched a sputnik. We have been busy correcting it ever since.

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Some years before, we had blurred an image of Russian schools. In our broadcasts to inside Russia, we were stressing our comforts and gadgets, as examples of what free enterprise could do, contrasted with the Russian way of life. It had suggestions of the rich kid walking through a tough neighborhood! Among the contrasts dwelt upon were our schools, which we assumed to be superior to those in Russia.

Suddenly, Harvard investigators woke up to the fact that the Russians were very proud of their schools, as an achievement of their ideology. For centuries, Ivan had been illiterate. Learning to read and write, for everybody, was something wonderful. Since then, we have learned a lot more about Russian education.

Russian images of ourselves are something else again!

How "MR" Works

MOTIVATION RESEARCH deals with *why* people buy, and do other things important to business. It is a development of market research, which deals mostly with their actions. Are they buying less soap, more synthetic detergents? Do they buy on certain days of the week, at Christmas? Is it true that Mom does 85 per cent of the family buying? For years, advertising has been shaped up to that belief—and now nose counts in supermarkets show that Pop is not only an important customer, but that his sales resistance is lower; he is a pushover for impulse items.

MR works something like psychoanalysis. According to what it is trying to find out, it selects panels of housewives, retailers, engineers, individuals, and groups, and quizzes them at length—"in depth" is the term. Its questions are loaded, so that in answering about one thing, the quizee reveals something different. On that account it has been suspected as another "hidden persuader" trick, for selling something the customer maybe ought not to buy. But it is really open and above board, does not try to influence anybody.

PEOPLE do not always know why they buy, or act. Suppose Mrs. Jones says she does not like the gas company. Pressed for her reasons, she does not admit that Mrs. Johnson told her something she heard from Mr. Harrison. She has a face-saving reason. She says she is a student of community affairs.

People buy for prestige, for gifts, to keep up with others, for many reasons based on emotion, whim. But they give other reasons. They are not logical or predictable. So MR probes for the down-under reasons, and these are often comical, as well as of the utmost value to sponsors.

For example, in wet weather, women wear large plastic galoshes over their shoes. A fine idea, very popular with women. A manufacturer reasoned that oversize galoshes would be a good item for men, but before making up samples, he ordered an MR survey. He dropped his idea. Men overwhelmingly said, "Not for me—those things are sissy." Changing that notion would be an impossible advertising job.

The mule in Man came up in another survey for aerosol hair fixes. They have become popular with women. Men use tons of hair fix in pomades. They have taken to aerosol shaving lathers. But they consider aerosol hair fixes something nice

for the girls, and let them have them.

Skeleton in GE's Closet

THE General Electric Company makes efficient DC motors, economical for many jobs, but plant engineers were not specifying them, for some unknown reason.

An MR survey was ordered, and it turned up a skeleton in GE's family closet.

Engineers had a feeling that DC is old-fashioned, and that installing it reflected on their professional ability.

Back in the 1880's when electricity was young, there was only direct current. When Tesla came along with alternating current, taken up by Westinghouse, it was fought as an interloper. DC was Edison. GE was Edison. In the battle that followed, no holds were barred; nobody had ever heard of "relations." The industry's whole investment was in DC. The other fellow's current was denounced as dangerous. The White House still had an electrician to turn lights on and off, too dangerous for the President's family.

As AC gained coexistence on its merits, the tumult died down, but left echoes. Today, although New York city runs largely on DC, young engineers come out of "Tech" with the notion that it passed out with horsecars. GE took steps to promote its DC motors in engineering journals.

Ideal Utility Customer

THE kind of image management might hold of the utility customer was sketched recently by a relations man.[1]

It would be a better world to live in, reasons Kimball Jack, if the average utility customer could be changed from an indifferent fellow, slightly disgruntled, into a friendly, active ally of the company.

Smiling cheerfully when the postman delivers his monthly bill, paying it with a feeling of gratitude that he lives in an age when electrical service is at his command for such a moderate cost.

Voting for the political candidate who recognizes the true worth of privately owned utilities, in contrast with the publicly owned city waterworks.

Taking up his pen to write his Congressman when unjust taxes or unfair legislation threaten.

If customers could only be changed into pals! A utility fellow may dream, but customers are never like that, and must be taken as they are. Motivation Research takes them as they are, finding out, reporting to management.

To a surprising degree, utility customers' ideas of companies are colored by enemies.

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[1] "A New Look at Customer Understanding," by Kimball I. Jack, vice president, Washington Water Power Company, PUBLIC UTILITIES FORTNIGHTLY, Vol. 61, No. 9, April 24, 1958, p. 577.

¶ Motivation Research is a precision tool for specialists, and in skilled hands can do an economical job. The researcher in this field must have a solid background in psychology, the social sciences, and anthropology, as well as experience in survey techniques, and in business problems, according to Audry Langdon, an "MR" specialist who has paid particular attention to industrial possibilities in technical journals. Miss Langdon has her own agency in New York city.

To illustrate: When rate hearings are necessary, management usual takes liberal advertising space to present its case in detail. It is confident that if the public is given all the facts, it will act favorably. Management appeals to reason.

MR raises some doubt about an appeal to reason in such circumstances.

THE newspaper reader is a headline skimmer. Reading his paper on a bus, he has a wealth of headlines—crime, world affairs, politics, horses, sports, the market. The utility presentation, on an inside page, is hard reading. He turns to a murder.

The same paper carries a report of yesterday's rate hearing, not very exciting as news, attorneys' arguments mostly. But by a simple device the enemies of private enterprise have moved it over to page 1, with a heading: "Utility Company Seeks Higher Rates, but Conceals Assets."

An obscure opponent of the rate increase has appeared before the commission and "revealed" the company surplus. This has never been concealed, of course, but it is perpetually being rediscovered for propaganda purposes. Anybody can testify before the commission, and then quietly disappear. If that money were used by management, no rate increase would be needed. There are numerous devices of the same kind, effective in registering a smear. The enemy wastes no time on reason. A steady succession of smears builds the kind of company image it wants the public to have.

Everybody will have forgotten last winter's sleet storm, when the company marshaled men and equipment from far and near, to restore service. At that time something might have been said about the dollars marshaled from the surplus, with explanations of why it is carried, and must be constantly replenished from earnings.

Customers and Company Have Few Contacts

EVEN telephone subscribers, who consciously use service oftener than power or gas customers, have only casual contacts with the company.

"What do I think of the electric light company?" asks Mr. Jack's average customer, when quizzed. "Why, I don't know much about it. I guess the service is all right. I never see anybody connected with it. I'd say it compares well with other business concerns here in town."

His wife would have more definite ideas, based on more contacts. Customer service has helped her in appliance trouble. She has attended cooking classes, heard company speakers, seen films at club meetings. The company seems to employ pleasant people, the man who adjusted the range was so polite—but these nice employees do not convey any image of the company.

People think of utility corporations as *big*, and there is a curious American attitude toward bigness. This is a big country, it takes big concerns to make and distribute goods, serve us with gas and electricity. We have to have big public works, big government, even big labor unions.

People moving into the suburbs have learned how much money and work are needed to provide schools, sewers, and other community facilities, and have seen utility companies meet their growth requirements.

How Motivation Research Works

"MR works something like psychoanalysis. According to what it is trying to find out, it selects panels of housewives, retailers, engineers, individuals, and groups, and quizzes them at length—'in depth' is the term. Its questions are loaded, so that in answering about one thing, the quizee reveals something different. . . . People do not always know why they buy, or act. Suppose Mrs. Jones says she does not like the gas company. Pressed for her reasons, she does not admit that Mrs. Johnson told her something she heard from Mr. Harrison. She has a face-saving reason. She says she is a student of community affairs. People buy for prestige, for gifts, to keep up with others, for many reasons based on emotion, whim. . . . They are not logical or predictable. So MR probes for the down-under reasons . . ."

AMERICANS seek jobs with big concerns. They offer stability and opportunities for advancement, meet change with research. To work for a big company is a rating of ability—you must have what it takes to work there.

Still, there is a popular distrust of big companies. They are concentrations of power, regarded as antagonistic to individuality, often stigmatized as "faceless." If you have a complaint, and know nobody in the company, you will get the run around. Everybody has had some experience in postwar years getting adjustments from big concerns through their middlemen. Big concerns have political influence, keep lobbies, hire clever lawyers.

Motivation Research explores such feelings, gets down below them, and is often able to suggest ways to change them—in some cases very simple ways.

Road to a Dealer's Heart

A LARGE chemical manufacturing company (Dow) has made available for the general good of management the results of MR surveys among service station owners, purchasing agents, and other business figures who would seem to be unaffected by emotions, yet are nevertheless found to be quite emotional in their affairs.

Dow makes chemicals used in antifreeze compounds, which its manufacturing customers sell through service stations; sells nothing to these dealers itself. An MR survey was sponsored to find ways in which antifreeze makers could increase their sales, which in turn would benefit the chemical company.

A firm article of faith among manufacturers of consumer products is, that the road to the heart of the dealers who distribute them is through their cash regis-

ters—check in any retail trade journal, with its pictures of happy dealers ringing up sales.

The MR survey showed that this notion was away off center.

The service station owner regards himself as a successful independent businessman, holding his own against big competition. He is generally an automobile mechanic who has worked his way up to ownership, and is proud of his ability to keep his customers' car expenses down.

Moreover, he likes to figure as a "Good Joe," a personality, active in community affairs, a worker on committees, a "joiner," delegate to conventions, pretty steadily in the local newspapers.

He has one great dread—that by some oversight, some failure to keep up with the advances in cars and petroleum products, he will lose the confidence of the customers who rely on him.

OBVIOUSLY, the cash register motive is not the most effective approach to this merchant, and the chemical company, presenting the more realistic image of him to its antifreeze customers, advised putting its technical services at his disposal, dealing with him as the businessman he is.

Another Dow survey was made among purchasing agents, for the improvement of selling policy and methods, and it turned up some surprising facts.

The friction between buyers and salesmen is of long standing; they are constantly holding forth on one another's shortcomings. To the salesman, the P.A. is a hard bargainer, a tough proposition—sometimes the seller tries to get into his graces with presents, or through higher-ups.

It was found that the P.A. has a sorrow. There is a notion, in business, that anybody who fails elsewhere in the organization, can always do the buying, sit at a desk and spend the company's money. Even in business, it is not always realized that much of his buying is done on specifications given him by others, and he is responsible for getting the best price, the closest conformation to specifications, the most reliable supplier for deliveries. Possibly more than other executives, he carries home work and worries.

The P.A. has fought a long battle for professional recognition by his company. He keenly resents offers of presents and attempts to get at him through superiors. That is a very tender spot.

Purchasing agents have common ratings for salesmen, classifying them into four varieties, only one of which is liked.

The overbearing high-pressure fellow is heartily detested, and nowadays not often found on large industrial companies' sales forces. The fawning "Yes man" is distrusted, as not a reliable source of information. There is a "robot" type, drilled in a sales spiel, neither fish, flesh, nor good red herring.

The salesman who gets the confidence of buyers, and the orders, is one thoroughly grounded in the technology of his wares, understanding the buyer's problems, not afraid to stand up and disagree with him when he is wrong. That kind of salesman is the product of training.

Customers Often Emote

THIS kind of survey often comes up with droll answers, as customers' emotions are probed—and with remedies comically simple.

What do housewives think of the new

prepared foods, instant coffees, cake makings in a box, frozen dinners? They are popular. How could sales be increased?

These quickies are promoted on convenience, the Little Woman is assured that she has had a busy day, that she can always get the dinner together in a jiffy, that guests will be astonished.

The Little Woman has a guilty feeling about quickies. She likes them, serves them, but feels that she should be baking biscuits like her grandmother, brewing coffee from the bean. Convenience is a sales argument that stirs her conscience.

So, it was suggested that these foods be promoted on quality, that a slightly higher price be stressed, to give her the feeling that she is feeding her family the best, guarding its health, the perfect hostess. A potent word in advertising these days is "gracious." Reassure her about the quickies, they are "gracious living."

What Are MR Specialists Like?

MOTIVATION RESEARCH is a precision tool for specialists, and in skilled hands can do an economical job.

This kind of researcher must have a solid background in psychology, the social sciences, and anthropology, as well as experience in survey techniques, and in business problems, according to Audry Langdon, an MR specialist who has paid particular attention to industrial possibilities in technical journals. Miss Langdon has her own agency in New York city.[2]

After investigating his client's problem, the MR researcher carefully builds a panel of people to be questioned—housewives, dealers, professional men, government officials. The design of this panel is very important, for it will affect results and research costs.

Some quizees will be interviewed as individuals, at length, and with these the interviewer is likely to be studiedly the outsider—neutral, passive, while receptive and alert for clews. Probing peoples' feelings is difficult, for most adults have spent a lifetime covering them up. When

[2] "Motivation Research," by Audry Langdon, *Chemical Week*, April 19, 1958.

¶ Compared wth market surveys, "MR" costs are moderate, though they may seem high on the basis of each interview. A typical survey of 100 interviews can be compared with 500 doorbells rung, or 2,500 mail questionnaires returned. The time required is shorter. One large survey took three months, but limited studies for a particular purpose may take less than a month. These surveys do take a good deal of executive time, for obtaining information about sales, production, policies, advertising, problems of the company, needed in designing the survey. The design is always passed upon by the executive who has the say-so. "MR" reports may seem odd to the executive accustomed to reports with statistics, tables, and graphs. For these researchers maintain that business concerns have personalities and in the eyes of their customers and their public, some are considered good citizens and others not. They report why, often quoting people, relating incidents.

quizzing groups, the researcher may be more energetic. Interviews are never conducted with people he knows, or with anyone having an interest in the client's business.

Panels vary in size according to the objectives aimed at, and the time needed to carry out the questioning. They can be as few as twenty-five individuals, and up to 500 persons interviewed in groups, according to Miss Langdon. The average is about 100 personal interviews.

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MR reports may seem odd to the executive accustomed to reports with statistics, tables, and graphs.

For these researchers maintain that business concerns have personalities, like families, that in the eyes of their customers and their public, some of them are considered good citizens, and others as living south of the tracks. They report *why*, often quoting people, relating incidents.

A report will sometimes confirm what management has long regarded as true, but never been able to confirm. In other cases, cherished beliefs are exploded. Miss Langdon maintains that Motivation Research has little to offer to management with strong-headed policies, or lacking leadership.

How Do You Hire More Engineers?

A NEW YORK man-power consulting firm (Deutsch & Shea) conducted a typical MR survey to get better ideas of how engineers feel toward companies recruiting them. What company images do engineers hold? What makes a favorable image? How can a good image be created?

The panel was made up of fifty engineers, employed by 44 companies around metropolitan New York, ages ranging up to forty. Each was shown the names of a dozen companies employing engineers, and quizzed for an hour and a half, for opinions. What kind of engineering ability does each company employ, how does it treat engineers, what sort of place is it to work?

Most of the quizees had sound information about some of the companies, knowing engineers employed by them, or perhaps having worked for them. About others they were asked to give opinions, what they had heard, stories, top-of-the-mind stuff, scuttlebutt. The results of these interviews were then used to construct composite images of each company, on the principle of the photographer who gathered portraits of scientists, corporation presidents, and other personages, and photographs one on top of another, on the same plate. In both cases, an interesting picture can be obtained.

From these images the following conclusions were arrived at for improving

company reputations with engineers. They are applicable to other employment.

ENGINEERS are always interested in reliable information about employing companies. Like employed people generally, they speculate about a change of jobs. They advise others about employment. Information from the horse's mouth offsets scuttlebutt.

Salary policies and the location of a job are not so important as a company's growth factor. Which way is it going? If strongly ahead, that affects stability and advancement.

Large concerns are regarded favorably for stability and advancement, but there is also the feeling that bigness may stifle individuality, creativeness—an engineer dreads being tied down to a desk with a slide rule.

Engineers are definitely clannish, like other professional men. They are critical of a company's engineering shortcomings, but seldom criticize its engineers—they criticize the company.

This survey showed that a good company image has dollars-and-cents value. In recruiting, it attracts better applicants. For present employees, it can bring satisfaction with their jobs, and build resistance to outside recruiting in a tight manpower market.

"Who, Me? How Should I Feel?"

OF course, quizzing the customers is nothing new in utilities. In the telephone field, especially, it is going on all the time, nationally, locally, through outside agencies as well as employees.

Much of this quizzing is done for future planning, but customer opinion is sought on quality of service, rates, and other matters about which people offer opinions.

THROUGH the postwar years, customer opinion of service and rates has been steadily favorable, in spite of waiting backlogs.

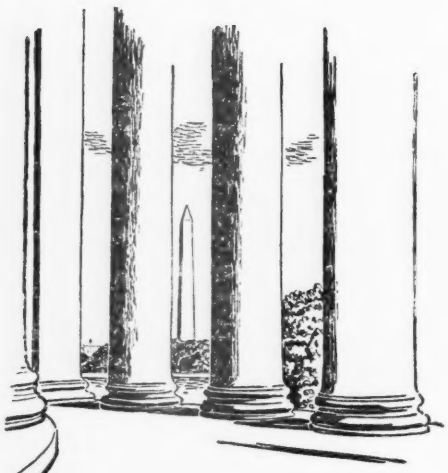
Improvements in service, direct dialing, new electrical and gas appliances have buffered rate increases.

But when customers are asked what they *think* of the company, they are nonplused. Favorable opinion is so often connected with individual employees, a meter reader, complaint clerk, installer, appliance service mechanic, that utility employees are being coached in salesmanship, to cultivate these rare contacts.

Motivation Research, exploring customer and public images of utility companies, finding out how they *feel*, what misinformation their images are based on, what sound information might be spread around, could come up with a new kind of guidance.

"Who, me?" Mr. Jack's average utility customer might ask. "What do I think of the electric light company? Why, I don't know anybody there. I don't know anything about them. How should I feel?"

¶ "PROFITS *are not alone an indicator of current performance, but are the essential key to forward progress in any business enterprise.*"
—RICHARD F. SENTNER,
Executive vice president, United States Steel Corporation.



Washington and the Utilities

The 86th Congress

THE results of the November elections have put the fate of legislation affecting public utilities somewhat in doubt during the next session of Congress. The greatly increased Democratic majorities in both the House and Senate are almost certain to produce, at least for consideration, legislation of an antiutility nature. On the negative side, proposals aimed at reducing businesslike activities of the federal government and the dependence of various groups on federal subsidies which were gaining increasing support in the last Congress, will no doubt be sidetracked until a more favorable political climate exists for their consideration. Regardless of what happens in the elections of 1960, the Democrats will control the Senate, at least, for four more years.

As for positive legislation likely to be considered next year, it is expected that proponents of a self-financing bill for future TVA expansion will be able to muster enough votes to break the bottleneck in the House Rules Committee which alone succeeded in preventing passage of such legislation at the last session of Congress. There has already been talk of assigning a sufficient number of "liberals" to the Rules Committee to outvote Chairman Smith of Virginia who is opposed to the legislation. In addition, the Democratic leaders in Congress, House Speaker Rayburn and Senate Majority Leader Johnson, have outlined a tentative program which includes relief to depressed areas, vetoed last year by President Eisenhower, expanded water conservation and irrigation programs, and a stepped-up domestic atomic energy program. To this list may be added the usual nuisance type of legislation designed to harass the utility industries, such as bills to deny them the benefits of accelerated tax depreciation in accounting and rate cases, along with bills to write stricter standards into federal regulatory commission laws. There is a very good chance that the House will give a new lease on life to the Subcommittee on Legislative Oversight for further investigation of federal regulatory commissions.

As was the case last year, the 86th Congress is likely to be remembered for what it fails to do for public utilities, rather than for positive legislation of the restrictive type. Proposals to exempt inde-

pendent producers of gas from FPC regulation, for example, certainly have less chance now for congressional approval than they did last year. Not only is the Democratic majority in the House substantially greater, but many of the newly elected Democrats are from the so-called "consumer" states which have in the past led the fight against legislation to relieve the gas producers from federal control. The same may be said of any proposal to overturn the Memphis decision in the event the U. S. Supreme Court, which now has the case under advisement, fails to do so.

Utilities will probably be unable to depend too much on the development of a Republican-southern Democratic coalition which for the last fifteen years has kept punitive legislation at a minimum. It is true that the important committees in Congress will still be controlled by Southerners, for the most part. But it is equally true that many Southerners have not been particularly conservative with respect to legislation affecting public utilities. In the past, their willingness to cooperate with Republican minorities in Congress has been dictated by their desire to prevent civil rights legislation which they regard as dangerous to their interests. The November election, however, retired a number of conservative Republicans who sympathized with the South on this issue, replacing them either with liberal Democrats or liberal Republicans who have no use for the South's position on civil rights.

FOR the record, readers may find it valuable to note some changes in prospect on congressional committees with which the utility industry must deal in its relations with Congress. Assignments of newly elected Senators and Congressmen will, of course, not be made until Congress meets in January. Since practically all of the Democratic incumbents won in November, there will be virtually no change in committee chairmanships. There will, however, be some important shifts in the minority make-up of the committees, many ranking minority members either having retired or been defeated in the elections.

In the Senate, the defeat of Senator Bricker of Ohio is likely to promote Senator Andrew F. Schoeppel of Kansas to ranking minority member of the Interstate Commerce Committee. Bricker was also a member of the Banking and Currency Committee. Senator John J. Williams of Delaware is scheduled to succeed Senator Martin of Pennsylvania (who did not run for re-election) as ranking member of the important Finance Committee, headed by Senator Byrd of Virginia. The retirement of Senators Smith of New Jersey and Ives of New York promotes Senator Goldwater of Arizona to the post of ranking minority member of the Labor and Public Welfare Committee. Senator Case of South Dakota will lead the minority on the Public Works Committee, succeeding Senator Martin of Pennsylvania.

Other retirements or election casualties include: Senators Potter (Michigan), Purtell (Connecticut), Payne (Maine), all members of the Interstate Commerce Committee; Senators Malone (Nevada) and Watkins (Utah), top minority members of the Interior Committee; Senators Jenner (Indiana) and Flanders (Vermont), both members of the Finance Committee; and Senator Thye (Minnesota), third ranking member of the Agriculture Committee. Senator Dworshak (Idaho) will assume Republican leadership on the Interior Committee.

THERE will also be a number of changes in the House. The committee lost a veteran in the defeat of Representative Miller of Nebraska, ranking minority

member of the House Interior Committee. Representative Saylor (Pennsylvania), a caustic critic of federal water projects which benefit only a few, succeeds Miller as the top Republican on this committee. Incidentally, the Interior Committee will also have a new chairman, due to the election of Representative Engle to the Senate from California. He is likely to be Representative Aspinall (Colorado), one of the sponsors of the controversial Fryingpan-Arkansas project. The minority leader on the House Public Works Committee is expected to be Representative Auchincloss (New Jersey), replacing Representative McGregor (Ohio), who died prior to the elections.

Snake River Dams

SECRETARY of Interior Seaton has once more come out for a moratorium on the building of dams across the Snake river in Idaho, below the mouth of the Imnaha. In a letter to Secretary of the Army Wilber M. Brucker, Seaton said there should be no more construction of dams in this area until the possibilities of providing additional water storage elsewhere have been fully explored. Seaton pointed out that the Middle Snake river basin, up to and including the watershed of the Imnaha river, an Oregon tributary, is the key remaining Columbia basin area for the production of anadromous fish. Specifically, Seaton stressed the problem of passing anadromous fish over high dams, both upstream and downstream.

The Department of Interior, with help from the U. S. Corps of Engineers, has been advancing biological and engineering research on this matter, Seaton noted in his letter. He said that while considerable progress has been made there remains much to learn before the problem can be successfully met. He pointed out that even after solving the fish-passage problem there remains the loss of spawning and rearing areas as a result of flooding by the reservoirs.

Seaton's letter to Brucker was based on an understanding that the Corps of Engineers is presently considering a number of dams on the Middle Snake river below the confluence of the Imnaha, an area which Seaton describes as essential to the Columbia river fishery and one which the nation cannot afford to sacrifice at this time. Interior studies to date, made by the Bureau of Reclamation, though preliminary in nature, indicate that there are storage sites above the Imnaha of considerable potential which can be developed now. Seaton said that he has been advised that these reservoirs, taken together with other projects in the general area which can be undertaken after the fish-passage problem is satisfactorily solved, will meet the objective of full comprehensive development.

SEATON suggested that the Army join with the Interior Department in the adoption of a firm policy of "orienting our planning for the undoubted water-control needs of the Pacific Northwest" to areas other than this critical portion of the Middle Snake river unless specifically required by the Congress, until "we can be sure we will not needlessly harm the vital fish resources," for "once this resource is destroyed it will be difficult if not impossible to restore it for a particular stream or river basin," even with future development of satisfactory fish-passage facilities.

Canadian Gas

EXCESSIVE controls and regulations recommended in the first report of the Canadian Royal Commission on energy resources (the Borden Commission) would discourage private investment in

Canada, according to J. R. White, president of Imperial Oil, Ltd. It will be recalled that the Borden Commission confirmed the necessity of export markets for Canada's oil and natural gas and recommended establishment of a national energy board to serve the government in an advisory capacity. Properly implemented, said White, these recommendations could help development of the oil and gas industries in the national interest. However, he warned that the complex and extensive system of controls which the commission proposes could do little else than hamper the energy industries and restrict their development.

White criticized the report for failing to make an allowance for the competition that exists among various sources, forms, and uses of energy. He noted that while gas exportation is recommended, a complicated procedure is suggested that will involve protracted delay in bringing about exportation. White said the recommendations, if carried out, would make it impossible to secure public participation in financing pipeline construction. In addition, he said, the report raises doubts about the sanctity of contracts as a basis for private financing.

White's last point is in reference to the commission's recommendation that the Canadian government cancel a contract between Trans-Canada Pipe Lines, Ltd., and Midwestern Natural Gas Company whose plans to import Canadian gas for use in upper midwestern states were recently rejected by the FPC. Since then, Midwestern has filed a new application with the FPC for the United States part of its proposal, but not the Canadian part.

THERE was evidence early last month that two major competitors in the U. S. for authority to supply midwest gas markets may get together on a joint plan for importation of Canadian gas when and if the Canadian government approves exportation. Top officials of Midwestern Natural Gas and Northern Natural Gas Company have been meeting in the hope of drawing up a joint proposal to present to the FPC. Presumably, a compromise between the two competitors would mean Midwestern would apply for permission to bring Canadian gas into the area while, at the same time, it would drop, in favor of Northern Natural, communities it originally proposed to serve.

The FPC, it will be recalled, while backing the idea of importing Canadian gas, has turned down all proposals to do so on the ground that they are unworkable. But in doing so, the commission urged the companies to submit new plans.

Euratom Progress

THE United States and six European nations have signed an agreement to undertake joint construction of six to eight big atomic power plants in Europe by 1963. Congress is expected to approve the agreement early next year.

The plants will be designed to generate one million kilowatts of urgently needed electricity. Europe now depends on dwindling coal resources and imported oil to fuel existing steam-generating units. The six European nations are Belgium, France, West Germany, Italy, Luxembourg, and the Netherlands—known collectively as the Euratom countries. Under the agreement, the United States pledged a $125 million loan and a 20-year supply of atomic fuel. The U. S., in return, will get new know-how on the construction and operation of large-scale power plants, which are not yet economically feasible in this country.

Telephone and Telegraph

Improper Influence Ban Urged

THE Federal Communications Commission, as well as other federal regulatory commissions, are looking closely at the recent Justice Department recommendations for ending the improper use of influence and pressure in the determination of the outcome of pending cases before the commissions. The Justice Department's formula would simply disqualify any successful applicant before a federal commission who "initiated, authorized, or later ratified any ex parte contact of any commissioner concerning the merits of the pending case," regardless of the merits of the case. Although the formula was aimed specifically at the award by the FCC of TV Channel 10 in Miami, Florida, the Justice Department's proposed rule could apply to all federal regulatory commissions.

In a brief submitted to the FCC, the Justice Department declared that successful applicants who exerted any behind-the-scenes pressures on agency officials should automatically be disqualified and deprived of their licenses, whatever the merits of the cases. This should also apply to current and future cases, and to all of the federal regulatory bodies, according to the brief signed by Attorney General William P. Rogers. Thus, the administration, which was damaged politically by the charges that now-resigned Presidential Aide Sherman Adams intervened in regulatory agency cases, went beyond previous moves to curb abuses, such as immediate notification of improper contacts to all parties involved in a case and a formal hearing on such contacts.

A FLAT rule disqualifying applicants who seek extra help, "vigorously and firmly applied, will go a long way toward assuring that administrative agencies in the performance of their quasi-judicial functions . . . act in accordance with the cherished judicial tradition embodying the basic concepts of fair play." The commission, of course, is not bound to follow the recommendations but undoubtedly will give them great weight. Other federal regulatory agencies the department's proposals would affect are the Civil Aeronautics Board, the Federal Power Commission, the Securities and Exchange Commission, the Federal Trade Commission, and the Interstate Commerce Commission.

"Any party that initiated, authorized, or later ratified any ex parte (outside) contact of any commissioner concerning the merits of the pending case should be disqualified," the Justice Department said of the Channel 10 case.

Contending that three of the original four applicants for the Miami channel had at least agreed to such contacts, including the present operator, the department proposed that the license be withdrawn. It suggested the entire case be reopened with new applicants invited to file for the station.

A question has been raised, however, as to whether the Justice Department's plan goes far enough. Automatically disqualifying a regulatory applicant practicing "backdoor advocacy" would do nothing about the problem of regulatory commissions which have indicated a tolerance for such procedure. It would leave uncertain the positions of regulatory staff members who have the occasion to make informal contacts with parties before the commission, as well as contacts with the commission itself. Finally, the Justice Department's plan would run up against the biggest problem of all; namely, the custom of Congressmen in addressing the commission on behalf of the interest of their constituents.

Telephone Bargaining Conference

A 57-MEMBER collective bargaining policy committee of the Communications Workers of America (AFL-CIO) will meet at the Barbizon Plaza Hotel in New York city on December 11th and 12th to review bargaining results of the current year and chart the course for the union's negotiators to follow in 1959. Joseph A. Beirne, president of the union, will act as chairman of the meeting. Most workers covered by CWA contracts are employed in the Bell system; approximately 10 per cent work for independent telephone companies and in other areas of the industry.

At the first meeting of the collective bargaining policy committee—last January in New York city—the union policy-making group set for itself both short-term and long-range goals subscribed as "attainable":

> Short-term: a substantial wage increase, longer vacations.
>
> Long-range: improved pensions, and company-paid health insurance.

UNION negotiators, directed by President Beirne, have recently completed a group of Bell system and independent company negotiations for some 50,000 communication workers; this wound up bargaining for the current year.

Wage increases ranging from five to nine cents per hour, on the average, have been won in 1958 negotiations.

The second short-term goal, longer vacations, became a matter for intensive bargaining late in September when management of the Western Electric Company proposed four weeks' vacation after thirty years' service to workers represented by CWA in the Western Electric Sales Division, covering 10,000 employees in 33 warehouses in 31 states. This was followed by a similar offer in Western Electric's installation division, covering 15,400 employees in 43 states.

In commenting on the vacation breakthrough, CWA President Beirne said:

> Although the offer of four weeks' vacation after thirty years was rejected—because of its inadequacy and because of certain strings tied to it—we have established the fact that longer vacations are overdue. The Bell system offer this year is the firmly established base from which we shall negotiate next year. The need and the principle will not have to be argued again. In next year's bargaining we will tie down the vacation improvements that will inevitably follow the company's ice-breaking offer in the negotiations just concluded.

Menomonee Falls Case

THE controversial Menomonee Falls case will have to be decided by the full FCC, now that the United States Independent Telephone Association has taken exception to an FCC examiner's decision approving the purchase of two suburban Milwaukee exchanges by the Wisconsin Telephone Company (Bell system). It will be recalled that two FCC examiners ruled that the acquisition of the properties by the Bell system company was in the public interest and would result in improving the local service which had been admittedly defective.

USITA, the principal intervener in the case, argued that the FCC should consider competitive factors and national antitrust policies with respect to Bell system acquisition of independent properties which other independent companies are willing to purchase. The common carrier bureau of the FCC, incidentally, agreed with the result reached by the examiners, but objected to the conclusion that a decision of the Wisconsin Public Service Commission approving the sale was evidence of local public interest. In carrying its case to the full commission, the USITA states that "The effect on competition in the industry must be carefully weighed by the commission, lest the authority to grant immunity from the antitrust laws . . . inadvertently becomes an instrumentality whereby the government itself becomes the foster parent of monopoly."

Retroactive Reform?

PAUL A. PORTER, former FCC chairman and counsel for one of the accused applicants in the controversial Miami television case now being reheard, has spotted a flaw in the proposed retroactive reform. Mr. Porter said in his brief in the Miami case, being reheard by a special examiner on remand from the U. S. circuit court of appeals:

> Such a flat rule might well be desirable for the future. But to create such a rule now and apply it retroactively, regardless of the surrounding circumstances, would be grossly unrealistic and have sweeping consequences which would place the regulation of the communications industry in a situation even more perilous than it is today.

One of the "surrounding circumstances," Mr. Porter made clear, is the fact that "such activities [ex parte approaches] were not unusual" in the past. "The looseness and informality of the relationships between parties and commissioners has long" been known, he said, and "is well illustrated by the generally recognized environment prevailing when the bitterly fought Channel 10 case was pending."

Should the examiner, the FCC, and the courts decide to apply the strict rule in the Miami case, it must in all likelihood apply also in all other cases still pending before the commission and the courts. This includes the large number that have been remanded to the FCC because of influence charges.

SUCH application could cost some parties highly profitable television stations that have been on the air a year or two or more. The prevailing view of the Justice Department is that strong measures are needed to restore confidence in the FCC.

Reopening cases long closed is another matter entirely. Finality in administrative and judicial proceedings is important, too, and it is doubtful that decisions made years ago and affirmed by the courts will be reopened except for the gravest reasons.

Financial News and Comment

By OWEN ELY

Notes on Atomic Power

THIS department has for several years followed with special interest the claims made by General Electric that its boiling water reactor comes closest to the industry goal of being competitive cost-wise with steam-electric generating plants. This was supported by earlier estimates of kilowatt-hour generating costs published by GE, and by statements of Commonwealth Edison regarding the Dresden station. However, rapidly mounting costs of construction and new safety requirements spoiled these early estimates of producing electricity at some 6 to 8 mills per kilowatt-hour.

More recently we have mentioned the success of GE's small Vallecitos plant, and Pacific Gas' decision to build a much larger boiling water reactor, with the expectation that even now operating costs will prove competitive with the above-average steam cost in that particular area. AEC officials for some time did not seem to give due credit to GE, but later the suggestion was made that the construction program should largely be concentrated on boiling water reactors (except that research in other kinds of reactors should continue).

AT the second Geneva conference held this year, GE gained international support for its boiling water reactor, and obtained a contract for an Italian nuclear plant to be financed by a World Bank loan. With this encouragement, GE has recently proposed a three-way program for increased industry use of the boiling water reactor: (1) That electric utilities buy some 50 small nuclear units (costing about $4.5 million apiece) in order to train plant operators, solve technological problems, etc. (2) That three larger plants using the boiling water reactor should be built — toward which electric utilities would contribute about $111 million, the AEC $20 million, and GE $7 million. (3) With further technological progress developed by this program a

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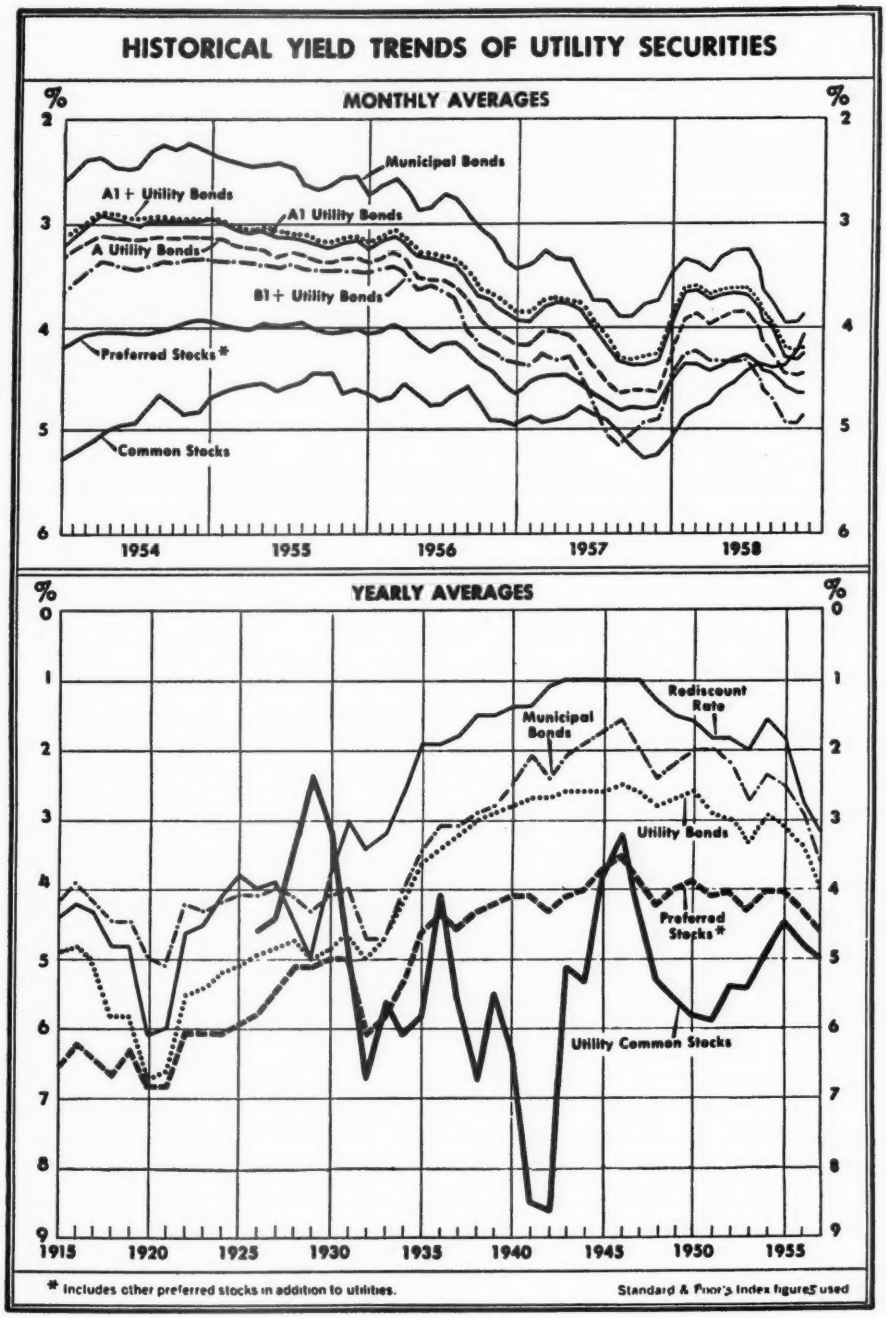
later generation of plants would be built which should be economically competitive in some areas by 1965. These plants would be built at an estimated cost of $200 per kilowatt and produce electricity at 6½ mills per kilowatt-hour.

GE may have been motivated in this proposal by a desire to "head off" any crash program for federal construction of reactors which might be sponsored by public power interests (with encouragement from recent election results). However, according to Dow-Jones, other major reactor builders such as Westinghouse Electric, Babcock & Wilcox, Combustion Engineering, and North American Aviation, take a rather dim view of the proposal, holding that "it's too early yet to pick the one best reactor for all locations, sizes, and times." Private utilities are also said to have some reservations about giving GE such a large amount of business in advance of further research efforts. The industry traditionally is accustomed to having at least two major suppliers for each item of equipment, which provides competition as well as protection during strikes, etc.

Meanwhile the Rocky Mountain-Pacific Nuclear Research Group, which includes eight investor-owned utilities and General Dynamics Corporation, is carrying on a major research program to achieve "a nuclear fission power system which will be truly competitive with conventionally generated electric power," through use of high steam temperatures and pressures. High-temperature, gas-cooled reactors are said to "give promise of reaching the goal of economic nuclear power." The program also includes research in the field of direct conversion of heat into electricity—the combination of the two lines of research is considered especially promising. General Dynamics is also at work on research with *fusion* for a group of Texas utilities.

Babcock & Wilcox, at its big research laboratory near Lynchburg, Virginia, also hopes to make progress toward the goal of competitive reactors with two new approaches to the present high costs of equipment and design. With its new research facilities the company expects to obtain answers to a number of theoretical problems, and also to test fuel elements at operating temperatures—present data are based almost entirely on calculations at room temperature. Also, it has submitted a proposal to the AEC for financial assistance for a study of gas-suspension reactor coolants which, according to a company spokesman, "may provide the royal route to competitive atomic power." The new method involves the use of fine particles of graphite (or other solids) suspended in a gas, to produce a new high-temperature coolant. This would permit substantial reduction in the size and cost of major components of nuclear power systems, it is claimed. The second idea is to replace costly control rods with a varying mixture of light and heavy water, which if feasible might more than double the life of water reactor cores.

Sanderson & Porter, utility engineers, have also developed some new ideas, described in *The New York Times* of October 5th. Their "pebble bed" reactor would use graphite or plastic pellets containing nuclear fuel, to be poured directly into the top of the reactor, thus eliminating costly fuel rods and other special hardware. The core would be of graphite, eliminating troublesome metallurgical problems, and the coolant would be helium, an inert gas. The combination of graphite and helium would, it is expected, enable the reactor to use high temperatures and thus be linked with the most


HISTORICAL YIELD TRENDS OF UTILITY SECURITIES
MONTHLY AVERAGES
%
2
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6
Municipal Bonds
Aa1 + Utility Bonds
Aa1 Utility Bonds
A Utility Bonds
Baa1 + Utility Bonds
Preferred Stocks*
Common Stocks
1954
1955
1956
1957
1958
YEARLY AVERAGES
0
1
2
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6
7
8
9
Rediscount Rate
Municipal Bonds
Utility Bonds
Preferred Stocks*
Utility Common Stocks
1915
1920
1925
1930
1935
1940
1945
1950
1955
* Includes other preferred stocks in addition to utilities.
Standard & Poor's Index figures used

modern steam turbine equipment. Mr. Benenati of Sanderson & Porter estimated that this type reactor could produce electricity at a cost of 7.46 to 8.07 mills per kilowatt-hour, fairly close to a competitive basis.

ON the deadline, November 21st, set by the AEC, a nation-wide private utility combine offered to build the great new gas-cooled atomic power reactor the last Congress ordered. More than forty power companies have joined in chartering High Temperature Reactor Development Associates, Inc., a nonprofit organization, and through it made the offer to the AEC.

They are led by Philadelphia Electric Company and the general atomic division of General Dynamics Corporation. If the commission is able to work out a satisfactory contract with this group, it will not build the reactor itself with government money. Congress gave the AEC this alternative.

The new plant would cost the companies about $24.5 million, and they would expect the AEC to contribute research and development, costing about $14.5 million. This project, with 40,000 kilowatts electrical capacity, would be the first application of a new concept in nuclear plants. It is not intended in itself to meet the objective of producing nuclear power that would be competitive with power from conventional fuels.

"Nevertheless," said the announcement from the Philadelphia Company, "the research and development and design studies which have been carried out over the past two years have established the technical advantages of the system and have pointed out the potential—in large-scale applications—of very attractive power costs."

The exact site of the plant has not been selected, but it probably will be somewhere on the Philadelphia system, owned and operated by that company.

The atomic heart of the plant, described as a high-temperature, helium gas - cooled, graphite - moderated reactor system, was conceived by general atomic division. It has been experimenting on this for two years in its own private laboratories.

The Bechtel Corporation will be the engineer-constructor of the plant, and Westinghouse Electric Corporation will provide the generating system, including the turbine and associated equipment.

Thermoelectric Power Developing Rapidly

"THERMOELECTRICITY," the generation of electricity directly from heat without any use of moving parts (eliminating the boiler, dynamo, and other complicated power plant apparatus), is now receiving greatly increased attention, according to an article in the *Scientific American* for November. The Seebeck and Peltier effects were discovered earlier in the nineteenth century but were then regarded merely as curiosities of the laboratory. Now, however, the use of semiconductors has opened up a whole new field of technology.

In 1821 when Seebeck discovered that a magnetic needle held near a circuit made up of two different conductors was deflected when part of the circuit was heated, it would have been possible to transform heat into electricity with an efficiency of about 3 per cent. While this was very low it compared favorably with the mechanical efficiency of the steam engines of that day. But Seebeck did not understand his discovery and nothing more was done for over 100 years.

In the 1930's the use of semiconductors in place of metals—as in the transistor for instance—began to be exploited for the first time. They are hundreds of times more efficient than metals in producing thermoelectric power, but we are still some distance away from practical applications except where small amounts of electricity can profitably be used. Thus far, a single unit can be made to produce only a fraction of a volt, but by joining hundreds of individual cells it might be possible to produce the 100 to 200 volts used in the average home.

The best thermoelectric cells thus far developed have an efficiency of about 10 per cent, compared with about 30 per cent for the steam-generating plant and 40 per cent for a gasoline engine. However, since the efficiency of a very small steam engine may be as low as 10 per cent, the thermoelectric unit is still in the running. Moreover, its efficiency will increase with the temperature—if 600 de-

SEPTEMBER-OCTOBER UTILITY FINANCING

PUBLIC OFFERINGS OF ELECTRIC AND GAS UTILITY SECURITIES

Date	Amount (Mill.)	Description	Price To Public	Underwriting Spread	Offering Yield	Aver. Yield For Securities of Similar Quality	Moody Rating	Success Of Offering
		Bonds						
9/9	$35	Texas East. Trans. 1st (s.f.) 5⅝s 1978	99.00	1.13N	5.71%	4.72%	Baa	a
9/15	50	Tenn. Gas Trans. 1st (s.f.) 5⅜s 1979	100.00	1.10N	5.38	4.56	A	a
9/24	40	Consumers Power 1st (s.f.) 4½s 1988	100.99	.83C	4.44	4.24	Aaa	a
10/2	10	National Fuel Gas S. F. Deb. 4⅝ 1983	101.09	.94C	4.80	4.61	A	b
10/7	5	No. Carolina Nat. Gas Sub. Inc. Deb. 6s 1983 with Common Stock	32.00	2.00N	—	—	—	f
10/8	11	Madison Gas & Elec. 1st (s.f.) 4⅝ 1988	100.89	1.08C	4.57	4.30	Aa	a
10/15	15	Idaho Power 1st 4½s 1988	100.00	.79C	4.50	4.29	Aa	b
10/28	18	Hartford Elec. Light 1st 4⅜ 1988	99.25	.82N	4.42	4.28	Aa	a
10/29	10	Texas Elec. Service 1st 4½s 1988	101.66	.70C	4.40	4.28	Aa	b
10/30	15	Puget Sound P. & L. S. F. Deb. 5¼s 1983	101.00	.97C	5.18	4.69	Baa	c
		Preferred Stock						
9/15	24	Public Service of Indiana Conv. 4.80% Pfd.	100.00	.70N	4.80	4.71	—	e
10/2	4	Hawaiian Elec. 5¾% Pfd. (Par $20)	20.00	.65N	5.75	4.73	—	a
10/28	10	Tampa Electric 5.10% Pfd.	100.00	1.73N	5.10	4.73	—	b
10/28	5	Hartford Elec. Lt. 4.96% Pfd. ($50 Par)	50.00	.98N	4.96	4.72	—	a
10/29	8	Texas Elec. Serv. $5.08 Pfd.	101.60	1.55C	5.00	4.72	—	—
		Common Stock—Offered to Stockholders					*Earns.-Price Ratio*	
9/24	15	Wisconsin Electric Power	29.00	—	5.86	—	7.63%	g
10/2	18	Peoples Gas Lt. & Coke	41.00	.25N	4.88	—	7.04	h
10/28	8	Hartford Electric Light	56.00	.40N	5.36	—	7.63	i
		Common Stock—Offered to Public						
9/10	2	Washington Natural Gas	14.70	.69N	—	—	—	a
10/16	14	Transcontinental Gas Pipe Line	23.38	1.44N	4.28	—	6.25	a
10/28	24	Florida Power & Light	78.50	1.65N	1.94	—	4.26	a

C—Competitive. N—Negotiated. a—Reported the issue was well received. b—Reported the issue was fairly well received. c—Reported the issue sold somewhat slowly. e—Offered to common stockholders on a 1-for-20 basis. Convertible after January 1, 1960, into 2½ shares of common. f—Offered in units of $20 debenture and two shares common stock; offering reported well received. g—Offered to stockholders on a 1-for-10 basis (not underwritten). h—Offered on a 1-for-10 basis; 99 per cent subscribed through rights. i—Offered on a 1-for-10 basis. Soliciting dealers' fee 25 cents a share.

Source of data, Irving Trust Company

grees centigrade could be used, efficiency would rise to 18 per cent.

WESTINGHOUSE ELECTRIC's engineers may be able to make some progress toward this goal. They are working with a new class of ceramic materials which can withstand high temperatures—permitting a larger difference of temperature between the hot and cold "junction" of the cell. Moreover, they are poor conductors of heat, thus reducing the loss of energy at the junction due to the transfer of heat. Massachusetts Institute of Technology is also working on a "thermoelectric engine" with an efficiency said to be more than 10 per cent.

It is reported that we already have some 30 thermoelectric devices for use where very small amounts of electricity suffice, as in solar batteries, etc. In Russia thermoelectric radio receiving sets are being produced by tens of thousands for use in isolated districts where regular electricity is not available. An ordinary kerosene lamp produces heat enough to generate all the electricity needed to power the set. The principle is also applied on a larger scale by using a kerosene stove both for warming purposes and to produce thermoelectricity for a small amount of lighting and communication.

It may take many years to develop thermoelectric cells to the point of efficiency where they could compete with a steam-generating plant, and perhaps this will never be accomplished. The possibilities would seem to be greater if thermoelectricity could be coupled with the fusion process where tremendous amounts of heat might become available for short pulses of time. In any event, the electric utilities will follow any new developments with great interest.

Nonrefundable Provisions of New Issues

WITH the sharp rise in interest rates in 1957, the demands by institutions that new issues should be nonrefundable for a period of five or six years came into vogue, and with the recurring money market stringency this year the practice has continued. Doubtless it had its origin in the experience of 1953-54 when a number of high-coupon issues were redeemed within a year or more after issue. It may be of interest to compare the number of issues which have had this provision in 1958 — in tabulating them minor variations will not be footnoted. (See table below.)

	Bond Issues		*Preferred Stocks*	
Month	*Redeemable*	*Nonrefundable**	*Redeemable*	*Nonrefundable**
January	10	2	3	—
February	7	1	4	1
March	9	3	1	2
April	10	3	1	—
May	9	2	2	1
June	10	2	4	—
July	6	4	3	2
August	3	1	—	—
September	—	3	—	1
October	6	1	3	1
Totals	70	22	21	8

*For a few years (usually five) after date of issue. The issue may be callable for sinking fund in earlier years, or redeemable as a whole if the cash is not obtained through sale of a new issue.

Electric Generating Capability Up 12 Per Cent This Year

ACCORDING to the twenty-fourth Electric Power Survey of the Edison Electric Institute the electric utility industry (private and public) is expected to have total generating capability of 146 million kilowatts at the end of this year, an increase of about 15 million kilowatts or 12 per cent over last year. With a somewhat smaller peak load than anticipated (due to the recession early this year) the margin over peak load was 25.5 per cent compared with an estimate of 22.9 per cent made earlier this year.

For the period 1957-61 load is expected to grow at the rate of about 7.6 per cent annually. Total capability at the end of 1961 is estimated at 180 million kilowatts, and generating plants to provide for this increase have been definitely scheduled.

Of the 485 units scheduled for the five years 1957-61, 333 are steam totaling nearly 43 million kilowatts, and the balance is made up of 152 hydro units with an aggregate capacity of over 9.5 million kilowatts. The overall construction program thus far scheduled, running beyond 1962, calls for a total of more than 52 million kilowatts, about 82 per cent thermal and 18 per cent hydroelectric.

RECENT FINANCIAL DATA ON GAS UTILITY STOCKS

Annual Rev. (Mill.)			*11/12/58 Price About*	*Dividend Rate*	*Approx. Yield*	*Recent Share Earnings*	*% Increase*	*Aver. Incr. In Sh. Earns. 1952-57*	*Price-Earns. Ratio*	*Div. Payout*	*Approx. Common Stock Equity*
		Pipelines and Integrated Systems									
$ 5	O	Ala.-Tenn. Nat. Gas	24	$1.20	5.0%	$1.66Je	17%	13%	14.5	72%	41%
192	S	American Nat. Gas	66	2.60	3.6	4.21Se	14	12	15.7	62	33
58	A	Arkansas Louis. Gas	40	1.20	3.0	1.85De	19	47	21.6	65	52
57	O	Colo. Interstate Gas	52	1.25	2.4	1.98Je	NC	—	26.3	63	23
376	S	Columbia Gas System ...	20	1.00	5.0	1.50Je	24	12	13.3	67	44
7	O	Commonwealth Gas	9	—	—	.40De	D26	—	22.5	—	77
17	O	Commonwealth N. G. ...	46	1.80	3.9	3.26Se	13	—	14.1	55	43
11	S	Consol. Gas Util.	18	.90	5.0	1.67Jy	D3	6	10.8	54	60
280	S	Consol. Nat. Gas	48	2.00	4.2	3.46Je	D2	12	13.9	58	57
18	O	E. Tenn. Nat. Gas	11	.60	5.5	.83Se	D2	—	13.3	72	20
301	S	El Paso Nat. Gas	34	1.30	3.8	2.39De	13	12	14.6	54	20
46	S	Equitable Gas	36	1.60	4.4	2.21Se	1	4	16.3	72	42
24	O	Gulf Interstate Gas	16	.50	3.1	.85De	10	—	18.8	59	21
34	O	Houston N. G.	26	.80	3.1	1.70Jy	21	8	15.3	47	27
20	O	Kansas-Nebr. Nat. Gas ..	38	1.80(f)	4.7	2.40Je	D7	12	15.8	75	32
109	S	Lone Star Gas	42	1.80	4.3	2.28Se	D4	10	18.4	79	43
75	S	Miss. River Fuel	37	1.60	4.3	2.00De	D14	2	18.5	80	49
26	S	Montana Dakota Util. ...	30	1.00	3.3	1.64Se	11	12	18.3	61	31
25	O	Mountain Fuel Supply ..	28	1.20	4.3	1.53Se	D9	8	18.3	78	62
86	S	National Fuel Gas	22	1.10	5.0	1.43Se	6	—	15.4	77	58
129	S	Northern Nat. Gas	30	1.40	4.7	1.68Se	NC	7	17.9	83	34
43	S	Oklahoma Nat. Gas	38	1.50	3.9	2.19Au	27	6	17.4	69	34
117	S	Panhandle East. P. L. ..	54	1.80	3.3	2.74De	—	2	19.7	66	41
13	O	Pennsylvania Gas	23	1.20	5.2	2.18De	D3	4	10.6	55	59
174	S	Peoples G. L. & Coke ...	49	2.00	4.1	3.08Se	7	7	15.9	65	39
101	S	Southern Nat. Gas	42	2.00	4.8	1.95Je	D16	4	21.5	103	41
38	O	Southern Union Gas	28	1.12	4.0	1.53De	—	10	18.3	73	31
313	S	Tenn. Gas Trans.	33	1.40	4.2	1.98Se	D8	10	16.7	71	20
175	O	Texas East. Trans.	32	1.40	4.4	2.59Se	14	25	12.4	54	18
96	O	Texas Gas Trans.	28	1.00(b)	3.6	1.98Se	D9	16	14.4	51	27
97	O	Transcont. Gas P. L.	24	1.00(b)	4.2	1.46Se	D4	29	16.4	68	21
300	S	United Gas Corp.	38	1.50	3.9	2.42Se	D2	12	15.7	62	41
		Averages			4.1%		3%	9%	16.6	67%	

Annual Rev. (Mill.)		(Continued)	11/12/58 Price About	Dividend Rate	Approx. Yield	Recent Share Earnings	% Increase	Aver. Incr. In Sh. Earns. 1952-57	Price-Earns. Ratio	Div. Payout	Approx. Common Stock Equity
		Retail Distributors									
28	S	Alabama Gas	34	$1.60	4.7%	$2.73Je	24%	15%	12.5	59%	42%
44	O	Atlanta Gas Light	37	1.60	4.3	2.63Se	20	5	14.1	61	33
3	O	Berkshire Gas	20	1.00	5.0	1.22Au	D2	31	16.4	82	39
6	A	Bridgeport Gas	29	1.60	5.5	2.13Je	D5	1	13.6	75	50
5	O	Brockton-Taunton Gas	17	.90	5.3	1.18De	D8	43	14.4	76	41
70	S	Brooklyn Union Gas	49	2.20	4.5	3.21Se	19	13	15.3	69	42
4	O	Cascade Nat. Gas	7	—	—	Def.De	—	—	—	—	18
39	O	Central Elec. & Gas	21	1.00	4.8	1.55Je	6	15	13.5	65	18
13	O	Cent. Indiana Gas	15	.80	5.3	1.11Se	—	7	13.5	72	67
5	O	Chattanooga Gas	6	.35	5.8	.59My	60	14	10.2	60	46
66	O	Gas Service	34	1.52	4.5	2.68Se	66	7	12.7	51	35
8	O	Hartford Gas	43	2.00	4.7	2.11My	D8	—	20.4	105	37
3	O	Haverhill Gas	23	1.40	6.1	1.99Se	5	20	11.6	70	58
18	O	Indiana Gas & Water	26	1.00(b)	4.0	1.55Se	10	11	16.8	65	47
48	S	Laclede Gas	20	.90	4.5	1.37Je	20	7	14.6	66	33
5	O	Michigan Gas Util.	20	1.05	5.3	1.32Je	1	18	15.2	80	34
6	O	Midsouth Gas	16	.57	3.6	1.00Ap	54	7	16.0	57	41
43	O	Minneapolis Gas	31	1.45	4.7	1.73Se	D16	12	17.9	84	42
15	O	Miss. Valley Gas	24	1.20	5.0	2.31Se	67	14	10.4	52	33
5	O	Mobile Gas Service	24	1.10	4.6	1.77Se	44	—	13.6	62	35
7	O	New Haven Gas	36	1.80	5.0	2.36De	4	—	15.3	76	68
13	O	New Jersey Nat. Gas	39	1.60(h)	4.1	2.71Je	17	—	14.4	59	35
80	O	No. Illinois Gas	23	.88	3.8	1.39Se	2	—	16.5	63	54
9	O	North Penn Gas	11	.60	5.5	.85Je	D5	8	12.9	71	58
16	O	Northwest Nat. Gas	17	.72	4.2	* .94Se	D17	4	*18.1	77	39
240	S	Pacific Lighting	51	2.40	4.7	2.95Se	45	—	17.3	81	36
22	O	Pioneer Nat. Gas	30	1.40	4.7	1.74Je	NC	13	17.2	80	36
2	O	Portland Gas Lt.	14	.50	3.6	1.50Ma	127	—	9.3	33	25
9	A	Providence Gas	11	.56	5.1	.56De	D10	13	19.6	100	50
3	A	Rio Grande Valley Gas	4	.24	6.0	.32Je	24	8	12.5	75	52
6	O	So. Atlantic Gas	15	.80	5.3	1.39Ma	43	5	10.8	58	30
12	S	So. Jersey Gas	39	1.60(h)	4.1	2.71Je	20	24	17.1	70	47
29	S	United Gas Impr.	46	2.20	4.8	2.94Je	18	5	15.6	75	64
51	S	Wash. Gas Light	47	2.24	4.7	3.34Se	35	2	14.1	67	41
11	O	Wash. Nat. Gas	14	(g)	—	.55Je	45	—	—	—	41
8	O	Western Ky. Gas	14	.60	4.3	1.53Je	112	4	9.2	39	38
		Averages			4.8%		24%	10%	14.5	70%	

RECENT FINANCIAL DATA ON TELEPHONE, TRANSIT, AND WATER STOCKS

Annual Rev. (Mill.)			11/12/58 Price About	Dividend Rate	Approx. Yield	Recent Share Earnings	% Increase	Aver. Incr. In Sh. Earns. 1952-57	Price-Earns. Ratio	Div Payout	Approx. Common Stock Equity
		Communications Companies									
		Bell System									
$6,313	S	Amer. T. & T. (Cons.)	201	$9.00	4.4%	*$13.53Au	4%	3%	*14.9	67%	64%
303	A	Bell Tel. of Canada	43	2.00	4.7	2.00De	D11	—	21.5	100	66
46	O	Cin. & Sub. Bell Tel.	88	4.50	5.1	4.93De	D12	1	17.8	91	100
232	A	Mountain Sts. T. & T.	134	6.60	4.9	9.14Au	D2	3	14.7	72	73
324	A	New England T. & T.	150	8.00	5.3	8.54Se	3	2	17.6	94	55
864	S	Pacific T. & T.	147	7.00	4.8	8.08Au	D12	1	18.2	87	59
108	O	So. New Eng. Tel.	41	2.00	4.9	1.90De	D13	—	21.6	105	64
		Averages			4.9%		D6%	1%	18.0	87%	
		Independents									
5	O	Anglo-Canadian Tel.	37	$1.20	3.2%	$3.11Se	D4%	56%	11.9	39%	55%
41	O	British Col. Tel.	41	2.00	4.9	2.08Je	D24	5	19.7	96	31

Annual Rev. (Mill.)		(Continued)	11/12/58 Price About	Dividend Rate	Approx. Yield	Recent Share Earnings	% Increase	Aver. Incr. In Sh. Earns. 1952-57	Price-Earns. Ratio	Div. Payout	Approx. Common Stock Equity
4	O	Calif. Inter. Tel.	14	.70	5.0	.83Se	D24	—	16.9	84	24
18	O	Calif. Water & Tel.	25	1.20	4.8	1.54Je	1	—	16.2	78	48
18	O	Central Telephone	25	1.00(b)	4.0	1.99De	—	10	12.6	50	28
5	O	Commonwealth Tel.	19	.90	4.7	1.24Je	D16	—	15.3	73	37
4	O	Florida Telephone	28	.90	3.2	1.00My	D10	1	28.0	90	46
289	S	General Telephone	59	2.00	3.4	3.05Se	D1	32	19.3	66	34
18	O	Hawaiian Telephone	19	1.00	5.3	*1.13Se	D12	7	*16.8	88	43
7	O	Inter-Mountain Tel.	16	.80	5.0	.94De	17	2	17.0	85	63
21	O	Rochester Tel.	21	1.00	4.8	1.21Se	D10	—	17.4	83	33
4	O	Southeastern Tel.	20	.90	4.5	1.11De	D21	—	18.0	81	54
10	O	Southwestern St. Tel.	25	1.20	4.8	1.57Je	D6	4	15.9	76	35
10	O	Tel. Service of Ohio	160	1.40(b)	0.9	8.18Je	13	NA	19.6	17	NA
34	O	United Utilities	28	1.25	4.5	1.54De	D6	1	18.2	81	40
15	O	West Coast Tel.	21	1.00	4.8	1.29Je	D13	4	16.3	77	35
260	S	Western Union Tel.	30	1.20	4.0	2.03De	D8	—	14.8	59	85
		Averages			4.2%		D7%	7%	17.3	72%	
		Transit Companies									
21	O	Baltimore Transit	6	—	—	$1.01De	124%	—	5.9	—	41%
12	O	Cincinnati Transit	6	$ .30	5.0%	.52De	9	—	11.5	58%	49
65	S	Fifth Ave. Coach	21	—	—	2.46De	D29	—	8.5	102	68
308	S	Greyhound Corp.	17	1.00	5.9	1.22De	D4	—	13.9	82	45
25	S	Nat. City Lines	28	2.00	7.1	2.74De	12	9%	10.2	73	94
13	O	Niagara Frontier Trans.	8	.60	7.5	.77De	35	—	10.4	78	78
65	O	Phila. Trans.	8	.60	7.5	1.23De	D25	—	6.5	49	38
17	A	Pittsburgh Rys.	9½	.25	2.6	Deficit	—	—	—	—	90
6	O	Rochester Transit	5	.40	8.0	.64De	D6	29	7.8	63	100
22	O	St. Louis P. S.	10	1.00	10.0	.57De	D17	19	17.5	175	94
15	S	Twin City R. T.	12	1.20	10.0	1.01De	D16	—	11.9	119	53
21	O	United Transit	5	.60	12.0	.87Ma	D1	11	5.7	69	51
		Averages			7.6%		7%	—	10.0	87%	
		Water Companies									
		Holding Companies									
43	S	American Water Works	14	$ .60	4.3%	$ .97Je	2%	5%	14.4	62%	17%
		Operating Companies									
5	O	Bridgeport Hydraulic	33	$1.70(f)	5.2%	$2.05De	D2%	5%	16.1	83%	53%
15	O	Calif. Water Service	46	2.40	5.2	3.12Se	D11	6	14.7	77	33
4	O	Elizabethtown Water	46	2.00	4.3	3.90De	19	30	11.8	51	58
11	S	Hackensack Water	45	2.00	4.4	3.18De	11	6	14.2	63	38
8	O	Indianapolis Water	23	1.00	4.3	1.26De	D11	—	18.3	79	35
6	O	Jamaica Water	39	2.00	5.1	2.90(a)Je	—	—	13.5	69	26
5	O	New Haven Water	65	3.40	5.2	2.30De	D20	—	28.3	148	61
2	O	Ohio Water Serv.	29	1.50(b)	5.2	1.63Se	D38	10	17.8	92	32
8	O	Phila. & Sub. Water	36	.50(b)	1.4	2.93Je	D10	7	12.3	18	28
2	O	Plainfield Union Water	60	3.00	5.0	4.42De	D12	2	13.6	68	63
4	O	San Jose Water	49	2.80(f)	5.7	3.38Se	D11	9	14.5	83	42
10	O	Scranton-Springbrook	21	1.00	4.8	1.67Je	10	7	12.6	66	29
5	O	South. Calif. Water	19	.80	4.2	1.10Se	D11	12	17.3	73	31
4	O	W. Va. Water Service	21	.68(d)	3.2	1.55Se	D17	9	13.5	44	17
		Averages			4.5%		D7%	7%	15.6	71%	

A—American Stock Exchange. O—Over-counter or out-of-town exchange. S—New York Stock Exchange. Ja—January; F—February; Ma—March; Ap—April; My—May; Je—June; Jy—July; Au—August; Se—September; Oc—October; N—November; De—December. NC—Not comparable. NA—Not available. D—Decrease. *On average shares. (a)—Adjusted to eliminate 13 cents per share of nonrecurring tax savings. (b)—Also stock dividend in 1958. (d)—Also 1 per cent stock dividend quarterly. (e)—Also 10 per cent stock dividend May 19, 1958. (f)—Includes extras. (g)—Four per cent stock dividend June 6, 1958. (h)—Also 2 per cent stock dividend December 1, 1958.

What Others Think

The Teaching of Public Utility Economics

PROFESSOR Garwood's analysis of the teaching of public utility economics, which appeared in this journal,[1] deserves praise for it is one of the few efforts in this area in recent years. Professor Garwood's findings, however, deserve further comment, both to prevent the reader from inferring conclusions that are only partially correct and because his survey reveals a feeling of apathy toward utility courses on the part of academicians that may lead to unfortunate consequences when viewed against the changing background of graduate training in economics. An elaboration of these points should be of interest to academicians as well as to those concerned with the management and regulation of utilities.

To summarize Professor Garwood's argument and findings, courses in public utilities have declined from a period of "... full flower in the decades of the nineteen twenties and thirties"[2] to the present time, when "... not over 75-80 colleges and universities the country over offer a course in Public Utilities ..."[3] Further evidence of this decline is the "... dearth of textbooks in the field.... (and) ... the relatively few doctoral dissertations... being prepared in the public utility field."[4] This decline was attributed by the instructors surveyed to five factors: (1) The course is too specialized for small departments; (2) other courses are of more current interest; (3) few trained utility teachers are available; (4) utility regulation now offers little challenge; and (5) government and business courses offer a convenient substitute.[5]

PROFESSOR Garwood believes that the thinking of the remaining utility instructors, as well as texts for utilities and government-and-business type courses, will exert an appreciable influence on both students and public opinion. Accordingly, he presents sample statements from texts and instructors on controversial topics and public policy.

What is perhaps most striking about these comments is the underlying feeling of apathy, which appears to be based on the belief that the field no longer offers a challenge and that its problems are no longer of current interest. Before dealing with the more important problem of apathy and its consequences, it is necessary to caution the casual reader against con-

[1] "What Are They Teaching about Public Utility Regulation?" by John D. Garwood, PUBLIC UTILITIES FORTNIGHTLY, Vol. 59, No. 11, May 23, 1957, pp. 733-748; also by the same author: "'Public Utilities' Now Taught by Few Colleges," PUBLIC UTILITIES FORTNIGHTLY, Vol. 62, No. 7, September 25, 1958, pp. 446-453.

[2] "'Public Utilities' Now Taught by Few Colleges," by John D. Garwood, *op. cit.*, p. 448.

[3] *Ibid.*

[4] *Ibid.*

[5] "What Are They Teaching about Public Utility Regulation?" by John D. Garwood, *op. cit.*, p. 736.

cluding that the number of colleges offering courses in Public Utilities has declined greatly from the period of the twenties or thirties, and that graduate student interest in the economic aspects of utility problems has also declined over the same period. Available information indicates that this is not the case. Public Utilities has never occupied the enviable position of being classified as a "popular" course. For example, the National Electric Light Association's study of college and university courses in utilities, issued in 1929, found that no more than 51 institutions were offering utility courses.[6] Yet, Professor Garwood notes that the course is currently offered by 75-80 institutions. This certainly does not seem to indicate a decline from a period of "full flower." Further, the NELA survey disclosed that course offerings in the kindred field of transportation were four times more plentiful than utility courses during this same early period.

NOR has the number of graduate students currently working with utility problems declined significantly relative to the twenties and thirties. Tabulating the number of doctoral dissertations dealing with public utility problems that were listed either as in process or accepted, for five-year intervals from 1920 through 1955, and for 1958,[7] we find a reasonable degree of absolute stability and no appreciable relative decline between earlier and later periods.

What has happened, of course, is that the number of graduate students working with utility problems has declined relative to the total number of graduate students in economics over the period. This declining relative importance need not be considered detrimental, nor should it, or a tabulation of the number of schools offering public utility courses, conceal a more important change that has been taking place in the graduate training program of the major universities which, when viewed together with a feeling of apathy toward utility courses, is of more direct concern.

GRADUATE students of a generation ago studied a simpler body of economic principles and tended to specialize in applied courses such as Public Utilities, Labor Relations, etc., which were often presented on a nontechnical basis. Today, graduate students spend far more of their graduate program dealing with the great array of concepts and detailed techniques involved in economic theory.[8] The result is that the present-day graduate student often approaches the problems of public utilities not as a student majoring in utilities, but rather as a theoretician looking for problems upon which to test or apply his new-found tools. Thus, while we may find that the absolute number of graduate students working with utility problems will appear to be nearly constant, what is changing is the basis from which graduate students approach the problem and the duration of their interest.

WHAT are the implications of this trend in graduate education, which

[6] *Public Utilities, A Survey of the Extent of Instruction in Public Utilities in Colleges and Universities, of the Industry's Interest in College Graduates, and of Willingness and Ability of Utilities to Co-operate with Higher Educational Institutions.* National Electric Light Association. New York, New York, 1929, p. 122.

[7] Dissertations are listed as follows for the years indicated:

1920— 9	1935—26	1950—26
1925—14	1940—19	1955—20
1930—27	1945— 3	1958—22

The data were obtained by counting those dissertations listed as in process or accepted by the American Economic Association's annual survey of dissertations. The term "utilities problems" was taken to include problems in the fields of electricity, gas, communications, urban transit, and multiple-purpose river basin development.

[8] "Graduate Education in Economics," by Howard R. Bowen, *American Economic Review*, XLIII, No. 4, Supplement, September, 1953, pp. 100-123, especially pp. 100, 101.

we may assume will continue for some years, in so far as the economic analysis of public utilities is concerned? Should courses in Public Utilities be regarded with apathy, by both instructors and students, much of the future work in the field will be the result of the eclectic efforts of persons with viewpoints colored by particular disciplines and without a full appreciation of the total picture. Thus, economic theorists, at the graduate and professional levels, will write for a limited audience of fellow theoreticians when they treat utility problems, while the solution of utility problems at the applied level will revert to engineers, accountants, and lawyers, most of whom are apt to be unaware of the contribution economic theory might make.

Such a dichotomy could result in an eventual compartmentalization and lack of communication that would benefit no one. Some evidence of this trend may be found in a recent text on electric rates by R. E. Caywood.[9] The author stresses the traditional engineering approach to utility rate structures and makes virtually no mention of the substantial body of economic theory available[10] on the relative merits of short- and long-run marginal costs as opposed to price discrimination as a basis for setting rates.

VITAL courses in Public Utilities can perform the valuable function of bringing together the insights of theory with the contributions of other disciplines toward the solution of problems facing management and the regulatory commissions.

In this way, not only will theory aid practice, but the flow of benefits will be reciprocal as theorists gain a fuller appreciation of the rôle of institutional factors in the economy. Utility majors, and other students, will also benefit because of a better knowledge of the range of tools available to them.

Thus, utility courses can serve to bring a variety of analytical procedures to bear on a continuously changing body of utility problems. The problems involved in the development of peaceful uses of atomic energy, the development of multiple-purpose river basin projects, and the control of natural gas production and distribution, to cite a few examples, are every bit as challenging as the problems of thirty years ago. Similarly, questions regarding the economic content and measure of the rate of return, as well as the treatment of features such as liberalized depreciation, indicate that the task of effective regulation is far from static.

IT is difficult to understand why utilities should be regarded as of little interest today, or as no longer offering a challenge, as Professor Garwood's respondents infer. Further, problems of this complexity cannot be adequately treated in the brief section allotted them in the typical government-and-business survey course which must cover everything from the administration of the Pure Food and Drug acts

[9] *"Electric Utility Rate Economics,"* by Russell E. Caywood, New York, New York, 1956.

[10] The following articles and books may be cited as representative of the contribution of economics to rate making:

"Marginal-Cost Price-Output Control," by B. P. Beckwith, New York, New York, 1955.

"Price Discrimination in Decreasing Cost Industries," by E. W. Clemens, *American Economic Review,* XXXI, December, 1941, pp. 794-802.

"Price Discrimination in Selling Gas and Electricity," by R. K. Davidson, Baltimore, Maryland, 1955.

"The General Welfare in Relation to Problems of Taxation and of Railway and Utility Rates," by H. Hotelling, *Econometrica,* VI, July, 1938, pp. 242-69.

"Electricity Tariffs in Theory and Practice," by H. S. Houthakker, *Economic Journal,* LXI, March, 1951, pp. 1-25.

In addition to these references, mention should be made of the pioneering analysis of electric rate economics presented by M. G. Glaeser in *"Outlines of Public Utility Economics,"* New York, New York, 1927.

to the procedures of the National Labor Relations Board. Certainly, if, as Professor Garwood states, college courses, texts, and instructors have an appreciable effect on students and public opinion, then the necessity of dynamic utility courses becomes all the more apparent.

—HARRY M. TREBING,
Assistant professor of economics,
The University of Nebraska.

Who Needs Power for What?

MANY and marvelous, as everybody knows, are the uses of electricity. You can lift, lower, twist, turn, cool, heat, push, pull, brighten, dim, quicken, and slow down things with it, if you have it available with proper implements. A man in New Jersey can do all these things because there is electric power available for his use—half a kilowatt of capacity. A man in Washington can do them, too, because he has a kilowatt and a half at his command! Why does the westerner need three times as much power as the Jerseyite?

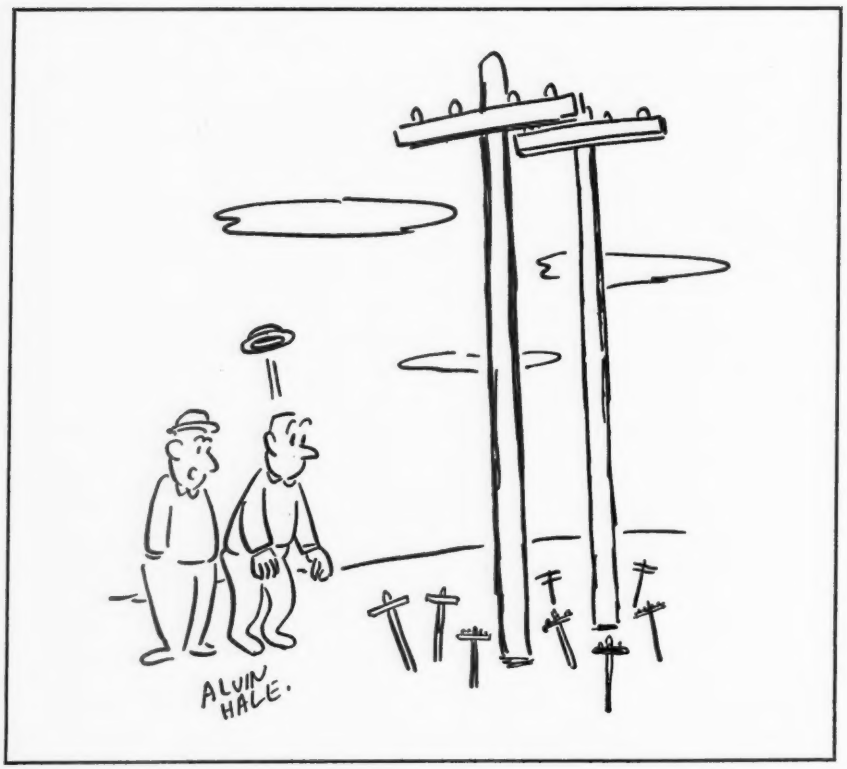
The average Marylander has available only 80 per cent as much power as the average American, but he produces 170 per cent as much with it! A Tennesseean, on the other hand, has 146 per cent of the average American's power supply, but produces only 64.7 per cent of the national per capita figure with it! Why?

Who needs more power? What does he do with it? Must we continue forever to pool our revenues and credit to provide more, and more, power for folks who already have twice as much, or more, as we have for ourselves at home? These are good questions. This writer, after some thirty-odd years in the electric power industry helping to promote new and greater uses for kilowatt-hours, has been fooling around with a lead pencil in an effort to figure out some answers.

Ciphering, without modern electric computers, he finds that the power supply per capita, in the United States is nine-tenths of one horsepower. (Most people have a vague notion, at least, of a horsepower, whereas a kilowatt is Greek to them!) What does he do with it? Besides enjoying his radio or television, or both, and setting up Great White Ways, and lighting modern shopping centers, he produces things with it, as a tool. In manufacturing, mining, and farming, he produces (per capita, remember) $1,008 worth of commodities with it! That is something; everybody knows we Americans can produce.

IT is necessary to produce, in order to live, and, more especially, to prosper. If any segment of our population cannot produce, for want of electric power, it just might possibly be smart, for the good of the order, to provide the power at our general expense. We would not tax the facilities, because they are ours; nor would we tax the use of them. This, of course, as has been heard for a quarter-century, would amount to subsidizing the people lacking power, and it would be grossly unfair to the rest of us, and to the men owning and operating facilities elsewhere. (These latter, incidentally, outnumber the supposedly power-short population!)

Seeing no end to the perpetual motion of public power in the very fair but overworked and rather ineffectual contentions just mentioned, this writer has undertaken a deeper, more fundamental probe. Simple answers are available in simple arithmetic. Instead of tackling the problem dollar-



wise in the millions or billions with which we are now nationally involved, he got down to small numbers for little people. And the answers are truly amazing—as witness, the disparities between Washington and New Jersey, Tennessee and Maryland!

THE U. S. Bureau of Census takes stock of industry, mining, and agriculture and reports every five years. It counts noses every ten years, and makes estimates betweentimes. Using the 1954 reports and the early 1955 population estimates, the writer wore out one lead pencil figuring per capita production for the United States and for 35 individual states. Then, with a fresh pencil, he computed the per capita supply of electric power, translating the Edison Electric Institute's 1954 report from kilowatts to HP's. (If later official figures can be found, let somebody with an electric tabulator struggle with them!)

Organized into a simple table, this arithmetic will not only point to basic answers to the public power "program," it will do more. It will knock your hat off, as it did for this old ex-newspaperman who always wears his hat at the typewriter and the multiplication table! (See page 980.)

There is no quarrel, here, with the subsidized areas for getting what they can at the public trough. If they wish to continue in the rôle of beggars, that is their own business. True, they now seem to be

naïve, to say the least, in swallowing Washington assurances that, once cured of an alleged power shortage, they will be sitting on top of the world. For lo, they are overpowered and sadly underproductive, by comparison with the rest of us.

Study of this table is urged upon New Jerseyites, Marylanders, and other overproducers who seem to get along very well with less than the national average power supply. Their Congressmen and Senators, Republicans or Democrats, who vote more millions for supposedly power-short areas, should have their heads examined. Their home-state payers of federal taxes should do the examining!

PEOPLE in areas yearning for, or being kidded into begging for, the so-called cheap public power as a panacea for any and all their economic ills might do well, also, to heed the warnings implied in this table. Every single one of the public power states listed (except Nebraska) is 'way below the national average in production, although above average in electric capacity! On the other hand, of the dozen-odd states which outproduce the national average, only three have more power than the national average with which to work! They are Indiana and Ohio (where public power is a negligible factor in production), each with a bare smidgin in excess kilowattage, and Montana (where public power is now almost half the total capacity) with a thin margin over the average in production!

Obviously, there is something wrong with the public power picture, which needs to be painted in its true colors. The error of the myth is all the more astounding for another reason, not revealed in the tabulation. In the high productive states with less than the national average of horsepower available per capita—from none of which is there any complaint (now or recently) of a power deficiency—it appears to be customary, standard practice to use actually, only from 60 to 70 per cent of the power capacity which is available. People use only two-thirds of the kilowatt-hours they could have if they needed them. As, Michiganders draw on the generating stations for only 65.5 per cent of the kilowatt-hours those stations could provide; or New Yorkers (now threatened with a state power "authority" to provide "plenty" of power) who demand only 67 per cent of their present plants' capability!

Nationally, Americans use 66.7 per cent of all the kilowatt-hours that could be generated. But customers in public power areas deviate from standard, widely. Oregon and Arizona people take only 60 per cent of the service they could have. Nebraska, which produces a shade better per capita than the country as a whole, gets along on 45.6 per cent of its capability. But Washington people actually use 70 per cent; Nevada, 72.7 per cent; Alabama, 74 per cent; Tennessee, 79 per cent; and Kentucky, well over 80 per cent! And still, somehow, production lags pitifully.[1]

ALL these figures are for 1954, incidental to the measurement of horsepower against production in the officially measured manufacturing, mining, and farming efforts of that year, and are hand-tooled from the Edison Electric Institute's minutely tabulated electric power statistics. They may be interpreted in various ways, but no interpreter can escape the essential, unavoidable conclusion, which is:

[1]No attempt is made, in this study, to measure the effectiveness of electric power in offsetting regional handicaps, such as lack of water, extreme climatic conditions (too hot, or too cold), lack of raw materials, remoteness of buyers for goods produced, shortage of transportation facilities, etc., etc. But this writer, after years of marveling at the ingenuity of the electrical engineering profession, is confident that somehow at some time or other, kilowatts or horsepower just may be applied to relieve some of those seemingly imponderable handicaps!

WHAT DOES A MAN *DO* WITH ELECTRIC POWER? ? ?

TABLE[1]

		(Per Capita)				*(Per Capita)*
Average man in	U. S.[2]	has 0.9	HP	available[3];	produces[4]	$1,008.00 with it.
" " "	Mass.	" 0.6	"	"	"	960.90 " "
" " "	Conn.	" 0.78	"	"	"	1,389.50 " "
" " "	N. Y.[5]	" 0.7	"	"	"	980.70 " "
" " "	N. J.	" 0.63	"	"	"	1,261.00 " "
" " "	Pa.	" 0.82	"	"	"	1,087.40 " "
" " "	Md.	" 0.78	"	"	"	1,715.22 " "
" " "	Del.	" 0.78	"	"	"	1,186.70 " "
" " "	Va.	" 0.73	"	"	"	657.03 " "
" " "	W. Va.	" 1.50	"	"	"	898.72 " "
" " "	N. C.	" 0.90	"	"	"	506.04 " "
" " "	S. C.	" 0.90	"	"	"	608.40 " "
" " "	Ga.	" 0.59	"	"	"	605.00 " "
" " "	Fla.	" 0.66	"	"	"	398.00 " "
" " "	Ala.	" 1.09	"	"	"	616.00 " "
" " "	Miss.	" 0.04	"	"	"	523.24 " "
" " "	Tenn.[6]	" 1.32	"	"	"	652.44 " "
" " "	Ky.	" 1.06	"	"	"	570.43 " "
Average man in	Ohio	has 0.93	HP	available;	produces	$1,321.27 with it.
" " "	Ind.[6]	" 0.95	"	"	"	1,372.50 " "
" " "	Ill.[6]	" 0.89	"	"	"	1,301.00 " "
" " "	Mich.	" 0.79	"	"	"	1,324.58 " "
" " "	Wis.	" 0.86	"	"	"	1,182.00 " "
" " "	Mo.	" 0.51	"	"	"	933.74 " "
" " "	Neb.	" 0.76	"	"	"	1,087.08 " "
" " "	Kan.	" 0.81	"	"	"	900.26 " "
" " "	Okla.	" 0.71	"	"	"	837.60 " "
" " "	Tex.	" 0.70	"	"	"	1,062.44 " "
" " "	Colo.	" 0.75	"	"	"	740.63 " "
" " "	Mont.	" 2.00	"	"	"	1,064.22 " "
" " "	Ida.	" 1.60	"	"	"	944.73 " "
" " "	Ariz.	" 2.07	"	"	"	833.49 " "
" " "	Nev.	" 3.50	"	"	"	761.14 " "
" " "	Cal.	" 0.83	"	"	"	995.15 " "
" " "	Ore.	" 1.30	"	"	"	853.30 " "
" " "	Wash.	" 1.90	"	"	"	767.00 " "

[1]Apologies are due to Maine, Vermont, New Hampshire, Rhode Island, Minnesota, Iowa, Arkansas, Louisiana, North Dakota, South Dakota, Wyoming, Utah, and New Mexico for not including them in this tabulation. They were omitted because complete data for them were not available and the figures obtainable indicated they followed the pattern of the more normal states.

[2]The average man does have more than one horsepower of connected load for his household. But A., he does not use all of it all the time; and B., his household may include his wife, three children, and a mother-in-law, which is where the per capita idea enters.

[3]Horsepower, from Edison Electric Institute data for 1954, calculated against U. S. Census Bureau population estimates, early 1955.

[4]"Produces," agriculturally, industrially, and by mining, according to U. S. Census Bureau reports for 1954.

[5]Certainly, New York looks odd in the tabulation on production. Remember that greater New York uses many HP's in the merchandising (to the world) of goods produced in New Jersey, Connecticut, and elsewhere. Also, in transporting workers to and from their work *and* the big white lights!

[6]Power supply from Indiana, Tennessee, Illinois, and elsewhere to atomic energy development programs is included in totals; but production, if any in measurable dollars, may not be.

Electric power as an economic cure-all is a delusion and a snare! True, it works wonders when used by working people with a market for their production, but it is by no means an automatic guarantor of prosperity—yet.

THIS is merely one old electric power man speaking, regretfully, on that last point. He never sold a kilowatt-hour, however, except for what it can actually do. And, he still prefers his gas incinerator and water heater! He asks the reader only if somebody comes around begging your vote for public power, or more of it, make the beggar tell you how much power he has available now, and, above all, what does he do with it?

—JOHN C. MELLETT,
Indianapolis, Indiana.

Notes on Recent Publications

REPORT of the Special Tax Committee on Tax Amortization, privately circulated to the members of the Federal Power Bar Association. (Not available for general distribution.) This report by the special committee of the Federal Power Bar Association, which was given at a meeting in Washington, D. C., on April 10th, is an excellent and timesaving summary of developments and decisions by the FPC and state commissions relating to liberalized depreciation and accelerated amortization, both with regard to accounting and rate-making treatment. A petition for review of the FPC's order in the matter of Amere Gas Utilities Company et al. (1 PUR3d 230) was dismissed by the court "without prejudice to the rights of petitioners to contest the substance of commission decision when, as, and if the policies involved therein are effectuated in an order or orders appropriate for review by petitioners in case, such as an order affecting rates."

The trial examiner's decision of March 17, 1958, in the Michigan Wisconsin Pipe Line Company rate case was based on the Amere precedent. He approved normalization of tax expense and declined to deduct the deferred tax reserve from the rate base. Further test of this decision will take place at the commission and court level later this year. The special committee's report airs the views of gas and electric utility companies and others regarding the proposed FPC amendments to the Uniform System of Accounts for utility companies. Two appendices give a quick run-down of the state commissions' actions on liberalized depreciation and accelerated amortization on a state-by-state and case-by-case basis. Dates and citations of orders and decisions are included.

Excerpts from high lights of "Rapid Amortization in Regulated Industries," Senate Report No. 1380, by the Subcommittee on Antitrust and Monopoly of the Senate Judiciary Committee, headed by Senator Kefauver, are included. One statement says electric utilities are not entitled to tax amortization and expresses doubt if it is legal. Majority thought shareholders rather than ultimate consumers benefited from tax amortization, but minority deemed it irrelevant who gained since the purpose of this accounting method was to encourage expansion of facilities for the defense of the country and was not concerned with lowering of electric rates.

Two well-known figures in the gas industry have recently collaborated on an article which, among other things, discloses many sources of supplies of gas in the future available to the industry when the need arises. The authors are Martin A. Elliott, director of the Institute of Gas Technology, and Marvin Chandler, president of Northern Illinois Gas Company. "The Bright Future for the Gas Industry," *The Analysts Journal*, August, 1958. Published by The National Federation of Financial Analysts, 444 Madison avenue, New York 22, New York.

The March of Events

U. S. Supreme Court to Review Gas Decision

THE U. S. circuit court of appeals for the District of Columbia, earlier this year (2 to 1), held that the Federal Power Commission is not obliged, in a certificate proceeding under §7(e) of the Natural Gas Act, to impose a price condition on the certificate, or to make a finding of reasonableness even though the proposed price is higher than that paid by others in the same area. There was a dissent expressed by Judge Bazelon, who held such action leaves the consumer unprotected, thus negating the purpose of the Natural Gas Act.

Now the Supreme Court of the nation has agreed to review the lower court's ruling which was appealed by an Oklahoma purchaser, Oklahoma Natural Gas Company, and by the National Institute of Municipal Law Officers. The appeal contends that under the Natural Gas Act the FPC must find all new proposed rates "reasonable," the same as it does when old rates are revised. The case involves the Natural Gas Pipeline Company of America which won approval of FPC for plans to buy gas for expanded service from three independent producers operating in a newly discovered Texas field at an initial price of 13.9 cents per thousand cubic feet. The prevailing price was 11 cents. Nevertheless, the FPC reversed its own examiner and authorized the project without any price reduction.

The lower court ruled that the commission cannot be required to convert every certificate proceeding into a rate proceeding and that it is invested with the power to exercise its discretion in such cases.

California

Los Angeles Gas Pipeline Sought

THE Southern California and Southern Counties Gas companies have filed an application with the public utilities commission for permission to construct a fourth separate natural gas pipeline to bring out-of-state supplies into the Los Angeles area.

The new line, which is estimated to cost $44 million to construct, will provide an additional 800 million cubic feet of gas a day for the Los Angeles area.

According to company officials, such a line will insure ability to meet the growth of domestic customers for many years. It also will make available to industrial users large additional quantities of gas, enabling

them to meet the requirements and objectives of the Air Pollution Control District.

Integration of this new line with present three out-of-state facilities would bring to almost two billion cubic feet the amount of gas that could be delivered into the Los Angeles area every day.

Louisiana

Tax Suspension

THE governor of Louisiana has asked for a suspension of collections of the state's "gathering" tax on natural gas, pending determination of its constitutionality by the courts. The tax has been challenged by a number of independent gas producers because of the rate structure involving interstate transportation of gas, but the state maintains that the tax is constitutional.

For the time being the governor, Earl K. Long, has asked the legislature to suspend the tax until 1960, but to substitute an increase in the state severance tax on natural gas from 0.3 cents per thousand cubic feet to 2.3 cents. This severance tax, which has been upheld by the courts, is paid "at the wellhead" in the production process by producers and royalty owners. The ordered increase will be costly to many small royalty owners. It would expire, however, when and if the gathering tax is held to be legal.

Nebraska

Randall Dam Line OK'd

A 126-MILE, 230-kilovolt power transmission line, which will cost an estimated $4,887,000, has been approved for financing by the Rural Electrification Administration.

The new line will extend from the South Dakota-Nebraska state line to Columbus where it will connect with a new 100,000-kilovolt substation. A line from Fort Randall power plant in South Dakota will connect with the new facilities at the state line.

The projected line will enable both the Loup River and the Platte Valley Public Power districts to buy a minimum of 60,000 kilowatts of power annually from the United States Bureau of Reclamation plant at Fort Randall.

The power will help provide seasonal electricity on a firm basis for irrigation purposes. The new line may be completed by the fall of 1959 or early 1960.

New Jersey

Bus Fare Goes Up Two Cents

THE public utilities commission has granted the Public Service Co-ordinated Transport of Newark a 2-cent increase in its basic bus fare, from 12 to 14 cents. School bus fares also were granted an increase from 6 to 8 cents.

The increase is for the first zone only. The rate for the succeeding zones remains at 5 cents a zone. This is the second increase given to Public Service in less than three years. The company owns about 60 per cent of the bus service in the state. Most of its local runs cover one and two zones.

Last March it applied for a 15-cent basic fare, citing the reason as additional expenses for wage increases for drivers and other employees.

The date when the new rates will become effective had not yet been decided.

Oregon

BPA Shows Loss

FOR the first time in its 20-year history, the Bonneville Power Administration has ended a fiscal year in the red. For the period ending June 30, 1958, BPA disclosed it lost $2,949,501 on its operations. The preceding fiscal period the net revenues were $5,965,735.

Since Bonneville is expected to go into the red again this year, studies are now under way to determine if the $17.50 per kilowatt-year wholesale rate should be increased. It has remained unchanged since 1938.

Bonneville is committed not to increase the rate before December 31, 1959, but must announce any increase six months before a change. Although net revenues dropped, BPA's gross operating revenues were $66,729,110, a new record but less than one per cent more than the previous year.

Dr. William A. Pearl, Bonneville Administrator, stated that failure of revenues to hold up was due to curtailment of power use by metallurgical industries served directly by BPA, and failure of distributors' loads to come up to estimates because of the mild winter and depressed business conditions.

Tennessee

Rates Held Reasonable

A FEDERAL POWER COMMISSION examiner, Francis L. Hall, has ruled that rates charged by Gillring Oil Company on natural gas sales to Tennessee Gas Transmission Company are reasonable. Hall held that an investigation of the Gillring rates instituted in January, 1956, should be dismissed and terminated. His decision is to become final if no review is initiated within thirty days.

The investigation resulted from a complaint by the Tennessee Public Service Commission, the Knoxville Utilities Board, and nine Tennessee communities and distributing companies which buy natural gas from Tennessee Gas Transmission.

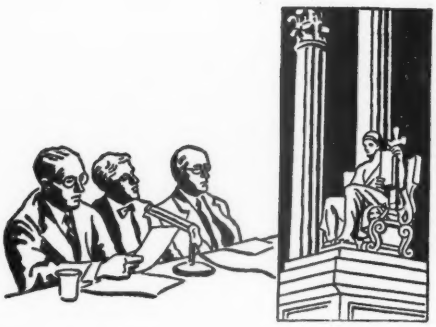
The Gillring rate, effective since November 1, 1954, is 11.903 cents per thousand cubic feet. Examiner Hall said that in the special and unique circumstances of the case it is impossible to conclude from the evidence that the present Gillring rates are not within the zone of reasonableness.

Wisconsin

Dam Ban Upheld

THE Wisconsin Public Service Commission turned down an application by the Wisconsin Valley Improvement Company of Wausau to build a dam on the Newwood river in Lincoln county. In an attempt to override the commission's refusal, Wisconsin Valley sought to have the commission's decision vacated. Circuit Judge Boileau held that Dane county circuit court had jurisdiction in the case and sustained the demurrer of the Wisconsin Public Service Commission which had dismissed the application.

Wisconsin Valley wanted authority to build a new dam on the river to improve the efficiency of hydroelectric plants on the Wisconsin river. The commission felt that the project would require flooding of state-owned land set up for public use, the basis for its refusal of the dam application.



Progress of Regulation

Trends and Topics

Life Insurance Premiums as an Operating Expense

PREMIUMS may be paid by public utility companies, as part of employee compensation, for insurance on the lives of employees. They may be paid for insurance on the lives of officers or stockholders, in which case the insurance may be payable to the corporation. It seems that insurance plans for the benefit of employees have been undertaken without criticism, but there may be limitations to payments under such plans. Insurance on the lives of officers and stockholders, however, has usually been subject to criticism where a company attempts to charge the cost as an operating expense.

The Pennsylvania commission ruled that costs covering life insurance premiums on policies covering employees should be allowed as an operating expense, but subject to the deduction of dividends. It appeared that gross premiums were paid to an affiliate, which in turn made payments to insurance companies. Dividends received from insurance companies were retained by the affiliate and not refunded to the operating company (40 PUR NS 146).

Insurance for Retired Employees

Whatever merit there may be in company contributions for life insurance of employees, expenditures for that purpose must be related to the retention of employees and not constitute a gift for past services. The Washington commission, in fixing rates for The Pacific Telephone and Telegraph Company, noted that a group insurance program recently instituted was made available to regular employees and also to retired employees. Under this program the company paid all premiums on life insurance for retired employees.

The commission's staff objected to the allowance of these premiums. The staff contended that the ratepayers would receive no compensatory effects from providing such benefits for retired employees and that such expenditures would, in effect, constitute a donation not properly chargeable to ratepayers. The commission concluded that no good reason had been shown why ratepayers should bear the expense of life insurance premiums for employees retired prior

to the effective date of the group insurance program. Accordingly, this item of expense was disallowed for rate-making purposes (25 PUR3d 18).

Insurance Policies Payable to Company

The California commission disallowed as an operating expense premiums for policies insuring the manager of a company. It said that while this might be considered as an indication of good business foresight from the viewpoint of the stockholders who would receive the benefits, it did not follow that in ascertaining reasonable rates such a charge should be included. The money collected in the event of the death of the manager would never find its way into operating revenue, nor was it likely that consumers would be given any benefit in the form of a reduction in rates (PUR1925A 724).

The Indiana commission disallowed the cost of insurance upon the life of a public utility manager, with the statement that this insurance was a protective procedure for the benefit of stockholders rather than patrons (PUR1921C 647). The same commission said that premiums for insurance on the lives of utility officers should not be charged to operating expenses when the entire common stock is owned by members of the family of officers insured and the proceeds of the policies would become the property and would inure to the benefit of the owners of the common stock (PUR1923E 62).

Premium payments made by a telephone company for a life insurance policy on one of its employees, in which the company was named as beneficiary, were not considered proper charges to operating expense in a case before the Alabama commission (97 PUR NS 24).

Similarly, the New York commission disallowed as an operating expense the cost of insuring for the benefit of the corporation the lives of the president and general manager. Loss attributable to the death of an officer could not be definitely measured, as in the case of fire losses, and it was by no means certain that the insurance money would be needed or used to offset such loss. The money realized would not find its way into operating revenues, but would have the effect of increasing the surplus and become available for an extra dividend (PUR1921B 463).

Insurance on Life of Endorser

The Massachusetts commission ruled that insurance premiums on policies on the life of a transit company's sole stockholder, required by and payable to a bank which permitted the company to borrow money on the strength of the stockholder's endorsement of company notes, were not a proper corporate expense and should not be allowed as a charge against gross operating income. The policies were made payable to the bank, and the corporation remained primarily liable on the notes and would be liable to reimburse the estate of the sole stockholder if he died and the policies were paid to the bank on his endorsement. The commission made the observation, however, that if the policies were made payable to the corporation, a different question might be presented (3 PUR3d 108).

Review of Current Cases

Deserved Telephone Rate Increase Denied Because of "Grossly Inadequate" Service

ALTHOUGH the Louisiana commission found that an increase of nearly $2 million in the intrastate operating revenues of Southern Bell Telephone & Telegraph Company would be just and reasonable, it, nevertheless, denied in full an application for an immediate increase of $7 million a year on an interim emergency basis and a permanent increase in the order of $13 million.

The commission charged that the company "has rendered grossly inadequate service to its Louisiana subscribers and has arbitrarily curtailed a necessary expansion program in this state, thereby failing to perform its obligation as a public utility to such an extent as to require the commission to deny to the company the increase to which it would otherwise be entitled."

The commission left the way open, however, for Southern Bell to apply for an increase "at such time as it can offer satisfactory proof that it is rendering adequate intrastate service to its Louisiana subscribers and has undertaken a sufficient improvement and expansion program for its Louisiana intrastate operations." The instant application for an increase followed a rate reduction ordered by the commission in 1956, which was sustained by the state supreme court.

The company's position was that its earnings since the 1956 curtailment have not been sufficient to enable it to borrow money and expand facilities to meet the growing need for service in Louisiana. It has, accordingly, curtailed expansion plans.

"Such arbitrary action borders on contempt," the commission declared, adding that it could not condone the company's violation of its public obligation on such grounds. It was pointed out that the failure to render reasonably adequate service is cause for the denial of an otherwise meritorious application for rate relief. Nor is it any answer, said the commission, to say that higher rates must be granted to furnish the necessary revenues for improved service; reasonable service must precede the rate increase.

Capital Cost and Revenues

As Southern Bell's common stock is all owned by American Telephone and Telegraph Company and not traded in the open market, there is no direct way of appraising its investment quality. Although the company offered little evidence on earnings-price ratios, the commission found a fair earnings-price ratio for Southern Bell of 6.75 to 6.85 per cent. Giving effect to savings enjoyed by the American Company from consolidated income tax returns, the parent would realize the equivalent of an earnings-price ratio in the range of 7.32 to 7.43 per cent, the commission observed.

Southern Bell's debt ratio for the test period was 23.8 per cent. The commission adopted a cost-of-debt capital of 4 to 4.1 per cent applicable to incremental debt capital necessary to raise the company's debt ratio to a prudent level of 45 to 50 per cent. A preferred stock ratio of 12 per cent was assumed at a cost of 4.75 per cent. The company in fact had no preferred stock.

Allowing a wage increase which became effective nearly five months after the test year cut-off date and using a prudent

capital structure, the commission calculated that the company would be entitled to additional revenues in the amount of a maximum of $1,918,707, based on operations during 1957. The adequacy of this additional income is more than clear, said the commission, when the unusually high depreciation accrual rate of Southern Bell is considered, along with the $5 million tax savings realized by the American Company from consolidated returns. The fact that the parent does not share these savings with Southern Bell does not bar the commission from taking them into account for rate-making purposes, it said.

Advertising Expense Disallowed

Southern Bell spent about $215,000 during the test year to inform the public of its situation in connection with the rate application. This item had been charged against operating expenses. Without going into the propriety or impropriety of this expenditure, the commission disallowed it on the ground that it was abnormal and nonrecurring and that its inclusion in operation expenses would distort the test-year earnings. *Ex Parte Southern Bell Teleph. & Teleg. Co. Order No. 7640, Docket No. 7432, October 10, 1958.*

Gas Rate Increase Allows for Full Tax Expense Following Reversion to Straight-line Depreciation

THE Pennsylvania commission has granted most of a rate increase of $5,237,800 requested by Equitable Gas Company. Authorized rates will produce a rate of return of approximately 6.2 per cent on a fair value rate base. The city of Pittsburgh contested the increase.

The commission fixed the fair value of the company's properties at $113.5 million on the basis of allocated original cost of $76,674,000, original cost trended to June 30, 1957, $167.4 million original cost trended to the average of the last three years prior to June 30, 1957, $153 million, and original cost trended to a 5-year average $151,241,000. Valuation on the fair value basis affords stockholders a large measure of protection against monetary debasement due to inflation, it was noted. This obviates the necessity for recognition in the rate of return of the decline in purchasing power of the original investment.

Depreciation Method

A depreciation reserve requirement study was accepted in lieu of book reserve figures which were considered unreliable. In determining the depreciation reserve requirement for producing gas well equipment, the commission thought the straight-line method was more satisfactory as a practical matter than the unit of production method, pointing to the depreciation problem attending the replacement of well equipment during the life of the well.

Depletion was calculated on the basis of a field price of 21 cents per Mcf, which price the commission considered realistic, even though the company had declined to use that price in its tax calculations because a recent tax return in which a 21-cent price was used had not been finally settled. The commission said it would not recognize, for rate-making purposes, misgivings regarding future federal tax audit adjustments.

Taxes and Other Expenses

Having reverted from accelerated to straight-line depreciation, the company claimed substantially higher income tax expense than would otherwise be neces-

sary. The city of Pittsburgh urged that the allowance be limited to the tax which would be payable if accelerated depreciation had been taken. In keeping with earlier rulings on this issue, the commission held that the company was within its rights, as a matter of managerial discretion, to revert to straight-line depreciation and claim tax expense on the latter basis. No abuse in that discretion was found by reason of Equitable's action.

The commission denied a claim for additional future cost of purchased gas based on the company's grant, subject to commission approval, of a price increase to independent local producers. A claimed expense thus not made final, said the commission, is not allowable in a rate proceeding.

Annualized expense was allowed for additional customers being served at the end of the test period, calculated by applying a judgment operating ratio of 65 per cent to additional operating revenues. Both expenses and revenues were adjusted to take into account loss of sales to industrial customers as a result of the steel strike in mid-1956. *Pennsylvania Pub. Utility Commission et al. v. Equitable Gas Co. C. 16843 et al. September 15, 1958.*

New Western Union Land-line Divisions of Charges Bring Higher International Telegraph Rates

THE Federal Communications Commission authorized increased divisions of charges for Western Union Telegraph Company applicable to the land-line handling within the continental United States of message telegraph traffic between the United States and foreign and overseas points. The upward adjustments in the divisions of charges will afford Western Union additional annual revenues of $2,260,000, only slightly less than the amount requested. While there has been no substantial increase in the company's charges for the land-line handling of international traffic since 1920, rates for domestic message telegraph service have been increased about 95 per cent since 1945. Obviously, rising costs have affected the cost of rendering all Western Union services.

Rate Base Items

A 1956 net cost rate base was fixed at nearly $201 million, approximately $8 million less than the claimed amount. Since the company's business is predominantly interstate, with the same facilities being used for both interstate and intrastate traffic, no separations were required. Plant under construction was included in the rate base, as no charge had been made for interest. Claims for research and development and for materials and supplies were allowed substantially as requested.

Cash working capital sufficient to cover twenty-two and one-half days of operating expenses was allowed, together with advances to employees, workmen's compensation deposits, and minimum cash balances. Offsetting this allowance in part was cash supplied by others, including telegraph money orders, American Express orders, excise tax collections, collections for other corporations, customers' advance deposits, collections for connecting carriers, employees' tax and insurance withholdings, vacation wage expense accruals, and federal income tax accruals.

Rate of Return Calculations

A company witness urged a fair rate of return on the land-line operations of between 8.25 and 9 per cent, calculating

equity cost at 9.3 to 10.3 per cent with a dividend pay-out ratio of 65 per cent, and using a debt ratio of 30 per cent (actual debt ratio 17 per cent) and a debt cost of 4.2 per cent. The witness found a composite cost of capital of about 8.5 per cent.

The commission arrived at a cost of capital ranging between 6.9 and 7.8 per cent, eliminating from equity cost a 10 per cent adjustment claimed by the witness for market pressure and financing costs. Concurrent earnings-price ratios were used, as opposed to the witness' use of lagged quarterly earnings-price ratios.

A fair rate of return was determined to range from 7.5 to 8 per cent. In proceeding from cost of capital to the allowable return, the commission gave consideration to factors "incapable of precise measurement, such as, for example, market pressure and financing costs and the judgments involved in determining Western Union's cost of equity by use of data for other companies."

International Carriers Get Raise

Since charges for international telegraph traffic are on a through rate basis, any change in existing divisions would necessarily decrease the revenues of the international carriers. Therefore, the commission undertook an investigation to determine whether such carriers could absorb decreases in their respective shares of the divisions of charges. It was found that the through rates collected from the public would have to be increased in order to provide a fair rate of return for the international companies.

In keeping with its established policy, the commission chose a "bellwether" company (RCA Communications, Inc.) to be used as a criterion for the fixing of rates "which will enable a sufficiently large segment of the industry to earn a fair rate of return." It, accordingly, rejected a proposed industry-wide approach whereby an industry-wide rate base would be used and a fair rate of return for the industry as a whole would be determined.

The commission also rejected a contention that a rate of return should be allowed for international telegraph carriers on the basis of nonregulated industry rather than on the basis of regulated industry. It found, however, that the problem of foreign operations in a period of international tension, together with the potential threat of substitute competition from jet-age airmail and high capacity telephone cables, warranted a higher rate of return for the international carriers than for the Western Union land-line service. A return of 7.5 to 8.5 per cent was found appropriate for such carriers, amounting to 25 per cent more than the return allowed to public utilities generally. Their rates were, therefore, appropriately increased. *Re Western U. Teleg. Co. Docket No. 11953, July 24, 1958.*

Reproduction Cost Basis for Telephone Company Charge for Music Amplifying Service

IN a complaint before the Missouri commission against Southwestern Bell Telephone Company, Wired Music, Inc., won a reduction in the telephone company's filed charge for amplifying service provided in connection with the distribution of "Music by Muzak." Only the charge for the amplifying service was in question in this proceeding.

Southwestern Bell has installed special equipment in its central offices to amplify music sold by the complainant over the telephone company's lines. The cost of such equipment has greatly increased since

the first amplifier was installed in 1946. Because of the greater hazard in furnishing the service as compared to regular telephone business, the commission was inclined more toward using reproduction cost than original cost in fixing a rate for the service. This apparently offset, in some measure, a claim by the company for a 7½ per cent return, which is rather higher than the usual telephone rate of return. The commission commented that the company's principal business of providing telephone service must not be subsidized to accommodate other uses.

The company had filed a tariff in 1957 fixing a monthly rate of $45 per amplifier, based on reproduction cost of the equipment. While this price included an annual charge for depreciation, it gave no consideration to the depreciation reserve resulting from the annual charge. Correcting for this error materially changed the company's rate base calculations, necessitating a lower charge for the amplifying service than that proposed. *Wired Music, Inc. v. Southwestern Bell Teleph. Co. Case No. 13,874, September 25, 1958.*

Maryland Commission Denies Lower Off-peak Fares, Issues Statement on Transit Situation

THE Maryland commission, in granting the Baltimore Transit Company a fare increase, which would not result in the conventional "reasonable return" on the fair value of the company's property but would provide a sufficient number of dollars to permit the company to continue operation and provide essential service, took exception to the company's proposal for authority to institute lower off-peak fares.

The company had requested permission to retain a 20-cent fare on weekdays between the hours of 10 A.M. and 3 P.M. The commission found the midday fare variation objectionable for a number of reasons. First, any fare differential based upon time of riding is bound to create a certain amount of confusion, pointed out the commission, particularly where the practice is not one of long standing.

Second, such a fare variation is discriminatory against the majority of the more or less captive riders, the riders who commute regularly to and from work. It is the captive group that can be relied upon to provide regular year-round patronage.

Third, the proposal might create another peak demand shortly before 3 P.M., a demand which, if met, could increase the difficulties in providing service required in the usual evening peak periods.

Fourth, a similar arrangement had been tried previously when the "two-trip" slip was in effect. This had proved unsatisfactory and had been discarded.

Fifth, by creating a differential of 50 per cent (between 20 cents and 30 cents) the fare could adversely affect the use of shoppers' specials during the base period, particularly in view of their being only a 20 per cent differential (25 cents and 30 cents) for the same service during peak periods.

Sixth, adherence to a time basis to determine fares could lead to innumerable petty differences between driver and passenger, a situation to be avoided if at all possible.

Transit Dilemma

To emphasize the seriousness of the transit situation, the commission felt justified in issuing an additional statement. Mass transit is a declining industry, said

the commission, because the factors that induce individuals to drive their own cars, or to obtain their required goods, services, and entertainment without coming into the downtown area, by transit, are as prevalent today as at any time.

The transit company is just as susceptible to inflation as any other business. Its requirements of the goods and services it purchases cost more and more each year. Wages alone represent over half the company's operating expenses. Tools, machinery, and equipment needed have doubled in price in the postwar years. The mechanization available to most utilities and industries to counteract the increasing cost of man power and to combat inflation is not available to transit.

Tax Burden

The commission pointed out that the tax burden the users of transit in Baltimore are required to support, with one exception, is the highest of any transit system in the country. This burden was not originated by the present administration but was imposed at a time when transit was a healthy and thriving industry well able to absorb a large portion of such taxes.

The commission did not consider it proper to suggest tax relief or to imply that the city could now afford to grant tax relief, but merely wished to point out that the elimination of some of the taxes imposed would partially obviate the need for fare increases.

The ultimate consequence of the passenger cycle, thought the commission, could only be the complete disintegration of the transit system. Such consequence can be avoided only if transit is supported by some means not now available or by a reconstitution of the transit business under which the users would not be required to bear the full burden now imposed upon private ownership.

The commission believed that the situation is of sufficient severity to warrant the most serious consideration by the state and city governments and by all private agencies interested in the stability and growth of the city's business and the welfare of the transit rider.

If Baltimore is to continue to have a transit system, said the commission, revenues must be available to meet cost of operation, whether such revenues come from the fare box or from some other source or in some other form. The commission's province was not to delineate a formula to solve the problem; the remedial processes available to the commission could lead only to the adjustment of fares affording no more than temporary relief so long as transit business declined.

Other cities, confronted with the identical problems now facing Baltimore, said the commission, have found it necessary to adopt a plan of control by an authority or by outright acquisition of privately owned lines. The commission urged a prompt and thorough consideration of the problem by the proper authorities. *Re Baltimore Transit Co. Case No. 5561, October 17, 1958.*

Commission Denies Request to Discard Statewide Rate Making in Favor of Exchange Basis

THE Oregon commission denied a petition to require a telephone company to make a special study of certain exchanges. The request was made with a view towards the commission adopting an exchange basis of rate making in contrast to its long-established policy of statewide rate making.

The use of the exchange as a unit for rate making would require a considerable added burden of personnel and expense in the keeping of additional records, preparation of additional allocations, and constant review, pointed out the commission. On the other hand, statewide rate making provides for the widest possible development of telephone service.

There would be immediate benefits in the form of lower rates to some subscribers if rates were established to produce the same rate of net profit in each of the exchanges, continued the commission, but this would lead to such high tariff rates in some exchanges that the company would be priced out of part of its market. Once such a reduction in service sets in, service to all the remaining users would become less and less valuable because the number of people that could be reached by telephone would become progressively fewer. At the same time it would tend to become more and more costly as the burdens of overhead are distributed among surviving exchanges.

A further difficulty in the approach suggested by the petitioners, pointed out the commission, is the resulting mischief if major capital improvements had to be justified solely on an exchange basis or cost of remodeling or repairs necessitated by catastrophic destruction had to be absorbed within a particular exchange, without financial support from the system as a whole.

Also, the commission observed that an exchange basis would vastly complicate the process of rate making. The company in question had over forty exchanges. A statewide program of rate revision would, in effect, be transformed into more than forty proceedings, subject to constant review, and the entire rate-making process would tend to degenerate into a confused turmoil of rate actions affecting individual exchanges.

The commission pointed out that changes in population trends and technological advances make necessary a periodic review of any long-established policy no matter how sacred it may be considered by some. Conversely, a well-established policy should not be changed unless there are clear and cogent reasons for such change. *City of Wood Village v. West Coast Teleph. Co. U-F 2149, Order No. 36256, September 22, 1958.*

Merchants' "Free" Transportation Held Common Carriage Requiring Certificate

THE California commission held that merchants operating a transportation service between their stores and three nearby farm labor camps were operating a common carrier service, necessitating a commission certificate in order to continue.

Utilizing station wagons, the owners picked up farm workers at the respective camps and transported them to the stores, where they were expected to buy merchandise. The purchase of merchandise was required for return transportation to the camp. The stores did not charge a fare as such; however, free "no strings attached" transportation was not furnished to any person desiring to travel between the two points.

The commission held that the requirement of purchase of merchandise before a passenger was permitted to board the vehicle for a return ride was consideration and compensation for transportation. Therefore, the merchants were engaged

as common carriers over public highways between fixed termini, or over a regular route, without having first obtained a certificate from the commission declaring that public convenience and necessity required such operation. A cease-and-desist order was issued. *Chala v. Gordon (Gordon's Outlet Store) Decision No. 57356, Case No. 6152, September 23, 1958.*

Erroneous Deletion of Certificate Provision

THE Alabama supreme court held that a commission order changing a motor carrier's certificate by deleting a provision for the transportation of liquid commodities in bulk was error. Once a certificate has been issued, the court pointed out, it cannot be revoked, suspended, or changed until after hearing and a finding that the carrier has willfully failed to comply with the provisions of the act or with regulations properly promulgated under it.

Construction of the state law which detailed revocation powers accorded with the construction of a similar federal statute by the federal courts. The court pointed out that the state law was patterned after the federal law, justifying such action. *Avery Freight Lines, Inc. v. Alabama Pub. Service Commission et al. 104 So2d 705.*

Commission Construes Freight Forwarder Statute

THE California commission held that certain companies alleging their status as shippers' agents were actually freight forwarders. The companies were held not to fit within the statutory exemption applicable to a shipper or a group or an association of shippers who consolidate and ship for themselves or members on a nonprofit basis to secure carload benefits. A cease-and-desist order was issued, effective until the companies have obtained certificates of public convenience and necessity.

The commission pointed out that the burden is on the party which claims the benefit of a statutory exemption to prove that it comes within it. Exemptions or exceptions from a general statute are to be strictly construed against the party urging that they are applicable.

The companies, found to be the alter ego of each other, were soliciting and actively encouraging nonmembers of a shippers' association to avail themselves of the consolidation services they offered, in order to produce more profit to the companies. This constituted a dedication to public use. Members in good standing, members who were delinquent in their dues, members who did not pay any dues, and nonmembers all enjoyed the same privileges. *Re San Diego Shippers' Asso., Inc. et al. Decision No. 57360, Case No. 6063, September 23, 1958.*

FCC Holding That Network Affiliation Outweighs Service Curtailment Set Aside

THE U. S. court of appeals set aside and remanded a Federal Communications Commission order modifying a radio station's permit to construct and operate

a television station. The commission had held that the curtailment of service resulting from the modification was outweighed by the availability of network affiliation at the new location.

Network availability, pointed out the court, may determine in many instances whether a station will survive, but does not determine whether a particular station will commence operations.

The commission had previously held that network programing is not so significant a factor as to warrant a preference in a comparative proceeding in favor of an applicant proposing to carry it as against one who proposes only locally originating programs. Yet, said the court, if the commission was now holding that the value of network programing is such as to justify curtailing a station's coverage, it was a conclusion within its competence.

However, even if availability of a network affiliation outweighed curtailment of coverage, whether modification was in the public interest depended, additionally, upon whether a network other than the one proposed might be available without a change and whether an affiliation with that network necessitated lowering both power and antenna height, as well as relocating the transmitter. The commission had not made such findings.

On a previous remand, the court had left it for the commission to conclude whether the applicant's "calculated, deliberate, and not insignificant" misrepresentation with respect to construction sites deprived it of reliability so as to disqualify it as a licensee. The clear implication of the remand was that the commission could properly conclude that a given misrepresentation, although calculated, deliberate, and not insignificant, was excusable.

Instead, the commission had concluded that the misrepresentation was not willful deception. Such a finding was not valid, held the court, because it contradicted the court's previous holding. The court hinted, in remanding the cause to the commission, that the applicant's record of past reliability as a standard broadcasting station and an FM station, might justify a finding that the misrepresentation was excusable. *Hall v. Federal Communications Commission, 257 F2d 626.*

Acquisition Cost Adjustment Results in Tax Saving To Stockholders

PLATEAU NATURAL GAS COMPANY obtained authority from the Kansas commission to conduct a gas business in several counties served by The Drillers Gas Company, whose assets Plateau had contracted to purchase. Simultaneously with Plateau's application, the seller applied for permission to discontinue operations.

The purchase contract fixed a purchase price considerably higher than the depreciated original cost of the properties. This raised a question of how to treat the excess cost. The commission found that the properties should be recorded at the dollar amounts as shown on the books of the seller as of the date of transfer, with the difference between the aggregate of such dollar amounts and the purchase price recorded as an acquisition cost adjustment in accordance with the Uniform System of Accounts. Amortization charges would be made on a 30-year basis to Account 537—Miscellaneous Amortization—as an expense to be borne by the stockholders. Such charges would not be chargeable as operating revenues.

This would result in an annual charge for depreciation for income tax purposes

in excess of the depreciation charge for rate-making requirements, and a consequent tax saving. The commission held that such saving should inure to the stockholders since they must bear the expense of the amortization. *Re Plateau Nat. Gas Co. Docket No. 57,632-U, August 20, 1958.*

Commission Approval of Water Company Contract Upheld

THE Connecticut supreme court dismissed an appeal from a commission order approving a contract between a Connecticut water supplier and a New York water company. Under the contract, the Connecticut company, which took water from a river in Connecticut having its source in New York, agreed to construct a dam filter plant and other filter facilities needed to enlarge the storage capacity of the company and to permit it to supply the increasing demand for water of its own and the other company's customers.

The court held that the appealing parties had failed to meet the burden of showing that the commission acted illegally or in excess of its authority. Upon appeal from a commission order, the court said, it is not required to retry the case but determines from the record whether the commission has acted illegally or has exceeded or abused its power or acted arbitrarily without notice or without a reasonable opportunity for hearing.

The court pointed out that the general statutes outlining the powers of the commission did not specifically require approval by it of any contract entered into by a public service company. If, by virtue of a contract, the services rendered or to be rendered by a utility are likely to be inadequate, unsuitable, or contrary to the public interest, the commission has the right and the duty to examine into the matter and make such orders as it deems necessary in the public interest to compel the company to fulfill its franchise obligations.

By the same token, it is within the commission's authority to hold hearings on the contract involved to determine whether it is in the public interest, and to approve the contract if it is concluded upon the evidence that it would provide a plentiful supply of water for the needs of the area for the reasonably foreseeable future, said the court.

Appellants had contended that a statute authorizing the attorney general to take such action as is necessary to protect Connecticut from damage by diversion or other interference with water from streams without the state which enter the state, and a statute authorizing him to negotiate and contract with out-of-state authority concerning the use, allocation, and diversion of such water, prohibited the contract in question. The court held that the statutes had no application to the contract and could not be invoked to prohibit it, in the absence of any indication that there would be damage by the diversion of water. *Town of Greenwich v. Greenwich Water Co. et al. 144 A2d 318.*

In another case the court held that the water corporation, which had charter power to take by eminent domain property necessary for corporate purposes and held a franchise to furnish water for specified towns in two states, had not acted ultra vires by contracting with the New York company to which it supplied water for towns in one of the states, whereby it agreed to construct a dam on a river, necessitating the condemnation of additional riparian rights. *Greenwich Water Co. v. Adams, 144 A2d 323.*

Eminent Domain Standing of Transit District Upheld

A TRANSIT district, organized under California law, has a right to invoke the power of the commission to fix the just compensation to be paid for utility properties proposed to be taken by the district in eminent domain proceedings. The California commission thus overruled objections by Key System Transit Lines to a petition by Alameda-Contra Costa Transit District requesting the commission to fix the price for properties of the transit utility.

A transit district is a "public corporation or district" within the meaning of § 23a, Art XII of the California Constitution and is among the entities specified in that section which may invoke the power of the commission to fix just compensation, the commission held. Such a public body exercises the power of eminent domain against a public utility, including acquisition of its physical assets, operating rights, and franchises, without thereby violating the constitutional prohibition against impairment of contracts.

In response to an objection of the utility, the commission ruled that the district's petition need not provide specifically for the fixing of compensation for good will, going concern value, and severance damages, since the commission will, if it so finds, fix the compensation for such items. A claim by the utility that the district should give a bond to indemnify the utility for expenses and damages incurred by reason of its being made a party to an eminent domain proceeding was rejected. The statute which authorizes the proceeding does not provide for such an indemnity bond. *Re Alameda-Contra Costa Transit District, Decision No. 57359, Application No. 40084, September 23, 1958.*

Termination of Holding Company Status

THE Securities and Exchange Commission issued an order declaring that Standard Shares, Inc. (formerly Standard Power & Light Corporation), has ceased to be a holding company and that its registration as such has been terminated. In 1956 in approving a § 11(e) plan proposed by this company, the commission had modified a previous dissolution order so as to enable the company to convert into a closed-end nondiversified, investment company.

The company has outstanding only one class of stock; namely, common stock. It owns 45.6 per cent of the common stock of Standard Gas & Electric Company, a registered holding company, which in turn owns 100 per cent of the common stock of Philadelphia Company, also a registered holding company. Both of the latter companies are required by orders issued under § 11(b)(2) of the Holding Company Act to liquidate and dissolve. Each of these companies is in a position to effectuate dissolution except that there exist undetermined questions relating to federal income taxes.

Holding Company Status

A "holding company" is defined under § 2(a)(7) of the act as any company which directly or indirectly owns, controls, or holds with power to vote 10 per cent or more of the outstanding voting securities of a public utility company or of a company which is a holding company by virtue of this clause. The commission noted that the company in this case no longer directly or indirectly holds or controls with power to vote 10 per cent or

more of the voting securities of a public utility company. As previously pointed out, however, it does hold 45.6 per cent of the voting securities of a registered holding company, which in turn holds 100 per cent of the common stock of another registered holding company. So this case presented a question as to whether Standard Shares was still a holding company by virtue of holding directly and indirectly more than 10 per cent of the voting securities of registered holding companies.

The commission pointed out that the act differentiates between a "holding company" and a "registered holding company." The former is defined as a company holding 10 per cent or more of the voting securities of a public utility company or of a holding company whereas the latter is defined as a person whose registration is in effect under § 5, while Standard Gas & Electric Company and Philadelphia Company are registered holding companies neither is a holding company since neither holds directly or indirectly as much as 10 per cent of the voting securities of a public utility company. Accordingly, the commission ruled the holding by Standard Shares, Inc., of more than 10 per cent of the voting securities of Standard Gas & Electric and indirectly of Philadelphia did not have the effect of making it a holding company within the meaning of Clause (A) of § 2(a) (7) of the act.

The commission also decided that the company was not a holding company under Clause (B) of § 2(a)(7) of the act since there was no evidence to indicate that the company exercised a controlling influence over the management or policies of any public utility company or holding company. *Re Standard Shares, Inc. File No. 30-152, Release No. 13824, September 23, 1958.*

Greater than Minimum Return Reasonable

THE Idaho commission authorized a water company to increase rates so as to produce a return of 6.1 per cent on a depreciated original cost rate base. The return, considered reasonable by the commission, accorded with its philosophy that a utility must have a return greater than the minimum required so that the financial position will be sufficiently sound to enable it to attract new capital as required to finance necessary plant expansion for the company.

The rate base was predicated upon end-of-period figures. The commission thought that if it were to use an average rate base it would be using investment figures too far in the past on which to test the reasonableness of rates for the future. *Re Boise Water Corp. Case No. U-1025-3, Order No. 4939, October 13, 1958.*

Commission Refuses to Change Telephone Boundaries

THE North Carolina commission denied a request of area residents to order a telephone company not authorized to service the area in question to provide service.

Once boundaries are established, pointed out the commission, the telephone company not only becomes committed to serve the area within the boundary but must install certain permanent basic facilities which will insure proper and satisfactory service therein. Hence, the

boundary lines should not be changed, and certainly not extended, except upon a showing of exceptional circumstances or a compelling public need.

The commission found that it would be manifestly unfair to require the company outside the service area to incur the expense that would be necessary to service the petitioners. Substantial construction charges would have to be paid by the petitioners, or, in the alternative, increased rates would have to be assessed against other telephone subscribers, the commission said. The company presently serving the area had evidenced a willingness to provide the desired service, which the commission directed that it do expeditiously. *Residents of Caswell County v. Southern Bell Teleph. & Teleg. Co. Docket No. P-55, Sub 199, October 15, 1958.*

Other Recent Rulings

Freight Forwarder and Common Carrier. The California commission held that a firm which undertook the collection and shipment of property of others, and, as consignor, shipped and arranged to ship the same over the line of a common carrier at the tariff rates of that carrier between points in the state was operating as a freight forwarder and a common carrier, and that it should obtain certificate authorizing such operation. *Re California Big Ten Co-operative, Inc. Decision No. 57361, Case No. 6069, September 23, 1958.*

Repeated Applications. Although the Colorado commission granted a motor carrier an extension of authority, it issued a warning that it would not entertain repeated applications designed to whittle away the authority of long-established carriers, particularly where, as in this case, the applicant abandons his applications after putting protesting carriers to the expense of defending. *Re Shank (AAA Transfer), Application No. 16291, Decision No. 51000, September 26, 1958.*

Carrier Operating Ratio. The Washington commission held that an operating ratio of between 93 per cent and 94 per cent before taxes is necessary for economically sound common carrier operations. *Re Motor Freight Rates and Charges, Cause No. T-9335, September 26, 1958.*

Minimum Tariff Canceled. The California commission canceled its minimum rate tariff for the transportation of logs where an investigation revealed that such tariff was not suitable or workable. *Re Rates, Etc., of All Common, Highway, and City Carriers on Transportation of General Commodities, Decision No. 57406, Case No. 5432, September 29, 1958.*

Time Limit Bars Reparation. The California commission dismissed a shipper's reparation claim against a railroad where the statutory limitation period had expired, notwithstanding that the railroad had voluntarily and informally filed a request to refund, and was presently willing to pay the claim. *Kaiser Steel Corp. v. Southern P. Co. Decision No. 57411, Case No. 6125, September 29, 1958.*

Telephone Rate of Return. Following substantial improvements in plant and service, a telephone company was authorized by the Wisconsin commission to raise rates sufficiently to afford a rate of

return of 6.4 per cent on a net book value rate base. *Re Eleva Farmers Teleph. Co. 2-U-5023, October 3, 1958.*

Telephone Rates Approved. Since rates proposed by a small telephone company would afford a rate of return of only 4.3 per cent on a net book value rate base, the Wisconsin commission approved them, noting that they would not be unreasonable in so far as subscribers were concerned. *Re River Valley Mut. Teleph. Co. 2-U-5049, October 17, 1958.*

Mismanagement and Gas Lost. The Tennessee commission denied a gas company's application for authority to increase rates where the necessity for increased revenues had arisen from mismanagement and gas lost due to an old and inadequate system. *Re Bristol Gas Corp. Docket No. U-4134, September 2, 1958.*

Sale of Water System to Municipal District. The California commission, in an interim opinion, held that it is not necessary for a political subdivision to prove financial responsibility to acquire a water system before being entitled to have the commission fix the just compensation to be paid therefor. *Re San Lorenzo Valley County Water Dist. Decision No. 57435, Application No. 39637, October 7, 1958.*

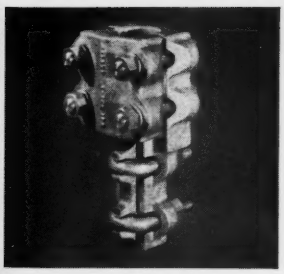
Transfer of Electric Service Rights. The Illinois commission issued a certificate to an electric company authorizing the acquisition, maintenance, operation, and reconstruction of another company's distribution system where the present company desired to discontinue service and the applicant intended to add additional facilities to provide more efficient service. *Re Central Illinois Pub. Service Co. No. 45397, October 7, 1958.*

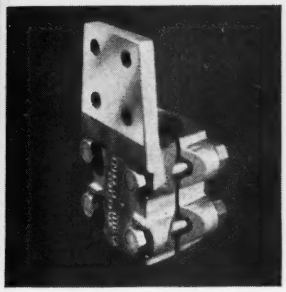
Telephone Company Sale. The Illinois Commerce Commission approved the purchase of a telephone company's plant, system, facilities, and franchises by another telephone company as in the public interest. *Re Palestine Teleph. Co. No. 45435, October 7, 1958.*

Pipeline Gas Supplied. Central Pennsylvania Gas Company, a distributor of manufactured gas, obtained an order from the Federal Power Commission directing Manufacturers Light & Heat Company to supply it with natural gas, expanding public need for the service being shown along with a lack of any undue burden upon the pipeline. *Re Central Pennsylvania Gas Co. Docket No. G-15710, October 8, 1958.*

Competitive Gas Certificate Denied. The Idaho commission denied two competitive applications for authority to provide gas service to a territory of about 17,000 persons upon failure of the applicants to show a definite supply of pipeline gas for nearly one-half of the area and that service to the remaining area alone would be economically feasible at proposed rates. *Re Citizens Utilities Co. et al. Case Nos. U-1007-1, U-1067-1, Order No. 4955, October 9, 1958.*

Service Deficiencies. The Illinois commission directed a water company to correct service deficiencies where the evidence showed that, due to a lack of proper size water mains, pressure was too low. *Illinois Commerce Commission v. Illinois Municipal Water Co. Nos. 43666, 43764, October 7, 1958.*





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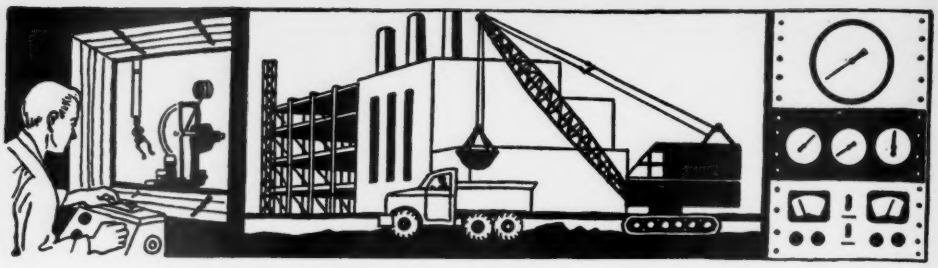

Industrial Progress

Modern Photo-Copying Techniques Cut Utility Paperwork Costs

FROM copies of pole lease agreements to copies of long distance telephone call tickets, public utilities from Seattle to Miami are cutting costs and improving efficiency with modern photocopying units.

Office copiers, or photo-copiers, are rapidly becoming synonymous with clerical efficiency and accuracy in modern business. For example, one $99.50 unit available can make 5 copies of any printed, typed, written or drawn 8½ in. x 11 in. or smaller original at a cost of 2½c per copy. Experience has shown that in the average company, such a copier pays for itself once every forty-five days.

In addition to the routine reproduction of office paperwork, utilities have found several specialized uses for photo-copying. For example, an electric company in Alabama uses a copier to make copies of pole and line specifications. Linemen nail the photocopies to the poles where the copies remain until the linework is completed. The company reports that the photo-copies are better than originals for this purpose because the sun and rain do not fade or blur them.

Similarly, a power and light company is making photo-exact copies of pole lease agreements with telephone companies. When new lines are put in, or existing lines are changed on joint telephone-light poles, a lease agreement is prepared. When the power and light company receives the lease, photo-copies are made on colored paper. Copies are then sent to the construction, repair, and accounting departments.

Likewise, an eastern telephone company is using a copier to reproduce radio program circuit orders. When a radio station wishes to carry a program not available through its own facilities, the program can be brought in by the telephone company on one of its long distance lines. In order to set up the circuit loop, all the telephone offices involved must be provided with the necessary program information in advance. This may require 10-15 copies of the program circuit order. Once a time-consuming typing task, the job is now done in a matter of minutes by a photo-copier.

More specifically it has been shown that it costs 40c for a secretary to retype a single 8½ in. x 11 in. document. Now, anyone, after a few minutes of instruction, can reproduce the same original on a photo-copier for 12c including labor and supplies. Thus there is a saving of 28c every time a copier is used to reproduce one page of material which formerly required retyping.

Dry-Land Ocean Duplicates 12,000 Foot Sea Depth for Cable Testing

A DRY-LAND "ocean," with the environment found two nautical miles deep in the sea, is under construction in Chester, New Jersey, by Bell Telephone Laboratories engineers for long term testing of underwater cables.

The man-made ocean, the only one of its kind in the world, will help examine cable "aging," the minute changes in electrical characteristics which may occur as the telephone cable rests on the floor of an ocean.

For better design of cables and submarine cable systems, Bell Laboratories engineers want to know whether cables age, the magnitude of aging, why the aging takes place and what physical changes in cables constitute that aging.

The answers would require either actually laying a test cable in the sea and making measurements during the period of sea exposure, or building a land-based ocean.

The engineers discovered t simulated ocean would be abo per cent cheaper than the cost o time operation in the deep sea would permit much more acc control and measurement of samples.

The "ocean" at Chester is 31 long, and buried seven feet unde ground. The "bed" of the simu sea is a concrete trough three in depth and about eight feet in w with pre-cast concrete slabs f cover. Atop the trough are four of soil. Going to the seven foot assures reasonably constant temperatures the year round.

The trough will be filled with maintained at an ocean bottom tem ature of 37 degrees Fahrenhe means of a network of cooling cast within the trough walls obtain meaningful measurements temperature must be held to w one-tenth of a degree during mea ments.

In the trough will be 10 lengt steel tubing arranged in pairs, tube large enough in diameter to a typical undersea cable plus water with the approximate sa found two miles below the surfa the ocean.

A hydraulic system will mai 5,000 pounds of pressure per s inch inside each tube to duplicate ditions at a depth of 12,000 feet. cable sample, 630 feet in length be looped in a pair of pipes so both ends will be available at one for measurement.

Ground anchors at one end o installation will provide for tensioning to simulate cable-la conditions. Tension will be applie a brief period after the cabl is p in its tube and will be redu ed sl to provide conditions dup icati trip from ship to ocean bott m.

The cable which finally is le

(*Continued on page 2*)

Has tools...will travel! Utility and other emergency servicemen swear by this Dodge V-8 Tradesman, and for good reasons. Besides pick-up load space, it has lock-up room for all tools. And with famous Dodge dependability, it has these advantages that come in handy on all service calls: 45 hp. more than Truck "C", 19 more than Truck "F" . . . shortest turning radius . . . the largest payload, load space, and brakes in the low-priced 3.

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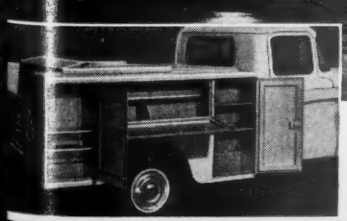

A king-sized tool chest on wheels . . . that's the Dodge Tradesman's body. Tools and supplies stow neatly, where you can reach them quickly. A place for everything. All compartments lock. Available sliding roof protects pick-up load space, between body sides. Choice of two body styles.

INDUSTRIAL PROGRESS (Continued)

the simulated ocean will be sub to tests lasting from five to ten The undersea laboratory is ex to be completed in late Nov with the tests beginning s thereafter.

The man-made ocean is the of O. D. Grismore and J. V. B both of whom are Bell Lab or engineers.

Bulletin Presents New Lin Ross Aftercooler

A NEW, 8-page Bulletin 30 just released by American-Sta Ross Heat Exchanger Div presents the A-100 line of Ro ss line Aftercoolers.

Among principal features des and illustrated are: steel shell struction, removable corrosion-r ant tube bundle, counter curren design, and a new, advanced cen gal moisture separator. The standardized parts are said to elim high engineering costs and long d involved in custom fabrication.

Specifications give details on models with capacities designat operating pressures up to 125 ps single and two-stage compressio

Copies of the bulletin can b tained by writing to Amer Standard, Ross Heat Exch Division, Buffalo 5, N. Y.

Cyclotherm Releases Film Package Boiler Manufactur

A NEW 20-minute sight-and-s film on manufacturing of pa boilers recently released by Cyclotherm Division, National-Radiator Corporation, Oswego, York, was shown recently at the necticut Light and Power Gas S This film is a part of a series will deal with Cyclotherm's engi ing, installation and maintenanc water generators and marine g ators.

The newly released film opens an airview of the Cyclother rm in Oswego. The narrator empha the fact that package boiler are made under one roof, with an divided responsibility. The strip shows in detail how the ste m ge ator is made, from the fir t pie sheet metal to the finished pa boiler leaving the plant.

The projector, operating on a AC current, and film can be obta for showings to large aud iences writing to Cyclotherm, Dept. Oswego, New York.

(*Continued on page 24*)

Electric Industry Told to Plan For Record-breaking Demands

THE electrical manufacturing industry must plan record-breaking capital expenditures over the next five years in order to meet the growing demand for electrical products, Don G. Mitchell, chairman and president of Sylvania Electric Products Inc., said recently.

Mr. Mitchell told the annual meeting of the National Electrical Manufacturers Association that industry must base its planning on electric power consumption of a trillion kilowatt hours by 1965 or earlier, as well as on increased automation in manufacturing necessitated to meet increased consumer demands and to combat rising costs.

He cited such advance planning as one aspect of the "scientific approach" the electrical industry must take to remain competitive. Whether the product be toasters or turbines, "you have to be scientific not only about your research and development, but also about your manufacturing, marketing, accounting and everything else."

Mr. Mitchell urged "a blend of mental free-wheeling and a practical and organized approach to your problems" rather than an "ivory tower" scientific approach.

"A company which confines its scientific approach to the laboratories is like a Model-T Ford with tail fins, and power brakes and electric windows," he noted. "It's still a Model-T Ford."

The Sylvania executive pointed to two predominant trends that are setting the pace for the entire industry —the broader use of electric power, and steadily increasing production of new and improved products. By 1965, he said, annual consumption of electricity is expected to reach at least a trillion kilowatt hours, against the present rate of 560 billion kilowatt hours annually, and shipments of electrical products should approach $40 billion, against about $20 billion today.

Studebaker-Packard Introduces 1959 Truck Line

STUDEBAKER-Packard Corporation is moving toward what it calls a revolutionary approach in truck marketing with the introduction of its 1959 line of Studebaker trucks. Included are the Scotsman six and V-8 half-ton trucks and the Transtar series ranging from a half-ton through two-ton vehicles.

S. A. Skillman, Studebaker-Packard vice-president and general sales manager, announced that the new line is setting its sights mainly on cutting costs for people who own and operate trucks, rather than selling them a luxury-type of vehicle that has little relation to the job it is supposed to do.

"We believe that the truck-buying public is becoming increasingly conscious of the fact that costs are a big part of their business," said Skillman.

"For the most part, however, manufacturers apparently have failed to take this fact into consideration. Rather, the trend seems to have been toward producing trucks on a stylized basis, like passenger cars.

"We have turned away from this trend—as evidenced by our market probing with the Scotsman pickup in 1958—because Studebaker-Packard is in business to sell trucks that do a truck job. It seems to us that a manufacturer is straying far from the real purpose of a truck when he offers a vehicle equipped with a lot of gadgets that most truck drivers have neither the time nor inclination to use."

Mr. Skillman said that in polling the market in 1958 through its introduction of the low-priced Scotsman pickups, S-P had accounted for 25 per cent of its sales with this type of vehicle. "This has proved to us beyond a doubt that our philosophy is correct and that truck owners are cost conscious," he added.

Mr. Skillman described the Scotsman pickup as the lowest-priced on the market, costing the least to operate and the most economical to maintain.

However, the low-cost features and the utility of purpose are not confined to the Scotsman pickups in the new truck line, Studebaker-Packard officials stressed. They observed that the same features are evident in all the rest of the line, which ranges up to the heavy-duty, two-ton models and the powerful 4 x 4 drive units.

A wide range of engines, power, models and gross vehicle weights are embodied in the 1959 Transtar line. The largest percentage of the truck field is covered by a truck built for the purpose.

New Okonite Manual on Paper-Insulated Power Cable

A NEW, solid type paper-insulated power cable manual has been issued by The Okonite Company, Passaic, New Jersey, manufacturers o sulated wire and cable.

This complete book is lib illustrated with photograph and diagrams. It contains 152 divided into five basic sectio which are completely and cl indexed.

In addition to product inform and technical material, this book plains how Okonite manufact skill, quality control procedures research assure manufacture uniformly superior product.

R T & E Introduces New Distribution Transformer for Underground Systems

A COMPLETELY new distribu transformer designed specifically application to underground distri tion systems was unveiled by RT & E Corporation of Wauke Wisconsin and Portland, Orego New York last month. The in showing was made to utility ex tives and representatives of indus and business publications at the Yorker Hotel.

This new transformer, design the "Terra-Tran," was designed R T & E in cooperation with e neers of one of the larger utilitie fill utility needs for a distribu transformer designed especially use with residential and comme underground distribution system provides, in a compact unit, an nomical solution to transformer stallations for underground distri tion systems.

The transformer is completely s contained and is designed to mounted on a concrete pad ab ground level. No separate enclos or protective equipment is requi for installation. To protect the pu and linemen from accidential cont all live parts are enclosed in a loc compartment and a welded-on co is used.

For operation and maintenance, cess to the bushings, fuses and connects is gained by opening hinged door on the operating co partment. To facilitate operati special externally-clamped, high-v age bushings, designed for easy co connection, and externally clamp low voltage bushings are used.

A unique high voltage fuse of n design, for isolating the transform from the line in the case of a tra former failure, is supplied on p tected-type transformers. It is

(*Continued on page 26*)

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bayonet design and can be removed externally for replacement of the fuse element. In conjunction with this externally-replaceable fuse, an externally-operated bayonet-type disconnect switch has been developed to sectionalize portions of the circuit.

The "Terra-Tran" will be available initially in single phase units in a range of sizes from 15 KVA through 100 KVA for operation on 4160 Ground Y/2400 through 12470 Ground Y/7200 volt grounded Y systems. It will also be available in 3-phase units in a range of sizes 75 KVA through 300 KVA for operation on all standard 2400 through 14400 volt 3-phase systems.

New Heavy-Duty Self-Supporting Tower

A HEAVY-DUTY tower self-supporting to height of 130 feet and suitable for all types of communication needs is being produced by the Rohn Manufacturing Company, 116 Limestone, Bellevue, Peoria, Illinois.

The tower is constructed by using 13 different tower sections of varying size, weight, structural strength and taper. The individual sections can be used in making additional combinations to build self-supporting towers of variable heights and structural capacities so as to fit the particular need as required by the type antenna being used.

The manufacturer states that the wide flexibility of this tower makes it possible for it to fulfill a tremendously large range of uses in mounting antennas for micro-wave, radio communications, television reception and amateur needs.

Complete engineering data, details and prices can be obtained from Rohn representatives or by writing direct.

Free Check Analysis Service Announced for Telephone Industry

AVAILABILITY of a free check analysis service for the telephone and telegraph industry primarily to help its members re-design their checks for electronic bank bookkeeping has been announced by the Todd Company Division, Burroughs Corporation, Rochester, N. Y.

The service will be provided by the firm's new Check Analysis & Design Department, created to assist banks and commercial firms in re-designing their checks to meet the needs of the new electronic bookkeeping equipment already installed in hundreds of banks across the country and on order by hundreds more.

In addition to rating a check on its adaptability to electronic processing, the analysis chart to be forwarded by the department will also appraise it on 12 other points, including general efficiency, arrangement for accurate bank handling, advertising and public relations values, color, typography, general layout, and safeguards provided against alteration and forgery.

To take advantage of the service, companies should send a sample of the check or checks they use to the attention of the Check Analysis & Design Department, Todd Company Division, Burroughs Corporation, P. O. Box 910, Rochester 3, N. Y. Check samples should be canceled by an all-zero checkwriter impression on the amount line.

Homes Cooled, Heated by Central Plant Predicted

AIR conditioning will be pumped into homes within the next decade. Chilled and warm water for maintaining comfortable year-round conditions will be supplied from a central source like other utilities.

This was the prediction of Charles V. Fenn, Carrier Corporation vice president, and whose Machinery and Systems Division produces the Absorption Refrigerating Machine that would provide cooling for the futuristic system. It is an economic phenomenon in itself, he explained, "using heat to produce chilling."

Electronic sensing devices will regulate the volume of hot and cold water in radiation panels, maintaining desired temperature and humidity settings for each room, he said.

Using such a system in "the house of tomorrow," the individual home furnace, cooling and dehumidifying apparatus, air ducts and hot water heater could be eliminated. Diffuser grilles, radiators, convectors, or any form of in-the-space air handling unit would also be unnecessary, allowing more living area and aiding interior decorative schemes.

All residential services will be supplied through underground pipes and wires from an attractive power plant, Mr. Fenn continued. Steam or hot water from gas fired boilers, for example, will serve a threefold purpose: Winter heating, domestic water needs and to energize the Carrier refrigerating machine for Summer cooling.

The unique cooling unit uses the principle that evaporation of water causes chilling. The process takes place under vacuum. Space occu by the smallest absorption type c made by Carrier approximate th a two-door wall closet. It has cap to serve 30 average-size dwel ng

Present-day forerunners of the tem described by Mr. Fenn a in eration at New York Inter nat Airport and the recently open d U Air Force Academy at Colo Springs, Colo.

Advantages of automatic al -se control, convenience, low mai ten and economical operation o er years with longer depreciation per will appeal to home owners jus they do to long-range planner , a tects and consultants for maj r p ects, the Carrier official said.

New Clark Bulletin Pres en Operating Experience Wit 750/1000 KW Gas Turbin

JUST published by Clark Bros. C pany, new illustrated Bulletin 167 tails operating experience with Mark TA 750/1000 kw gas turb Salient design features, types of f (natural gas, distillate, crude oil) applications in oil fields and pro industries are thoroughly discus Also included is an assessment of integrated turbine — boiler pack and likely future trends in turbine plication.

Copies of Bulletin 167 can be tained by writing to Clark Bros. Olean, New York.

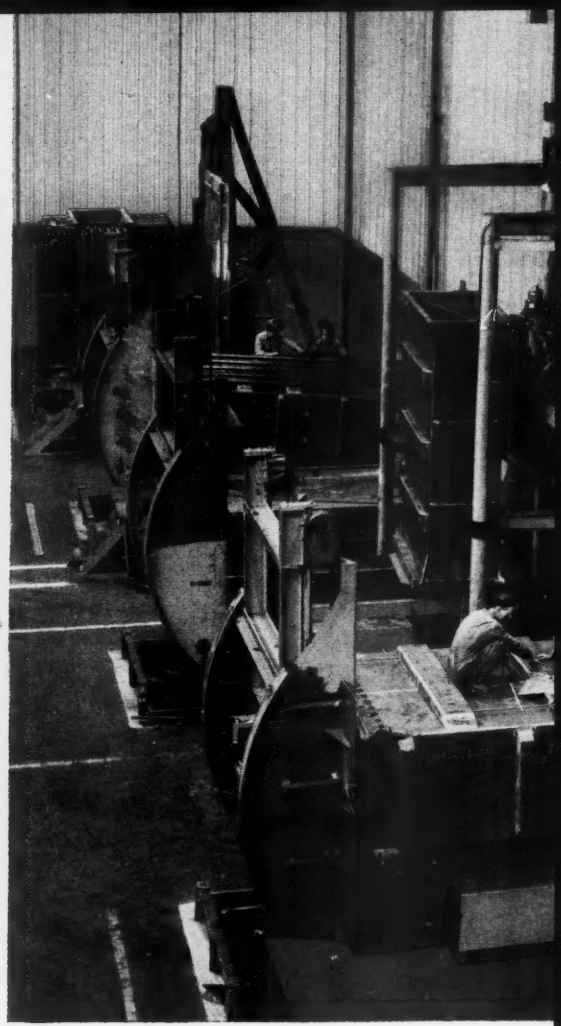
GAMA Publishes New Industrial Gas Directory

A NEW booklet—listing a wide riety of gas equipment for indust uses—has been published by the dustrial gas equipment division of Gas Appliance Manufacturers As ciation.

The publication lists the names a addresses of 36 manufacturers w brief descriptions of the type of ind trial gas equipment that each compa produces. It also lists various types equipment in alphabetical or ler gether with the names of prod cers each type.

All of the manufacturers are su scribers to the division's Code Ethics which was instituted seve years ago to insure the highe stan ards of design, construction, urabi ty, performance and safety i indu trial gas equipment.

Copies of the booklet are ailab at 50¢ a copy from the Gas A plian Manufacturers Association, 0 E 42nd Street, New York 17, . Y.



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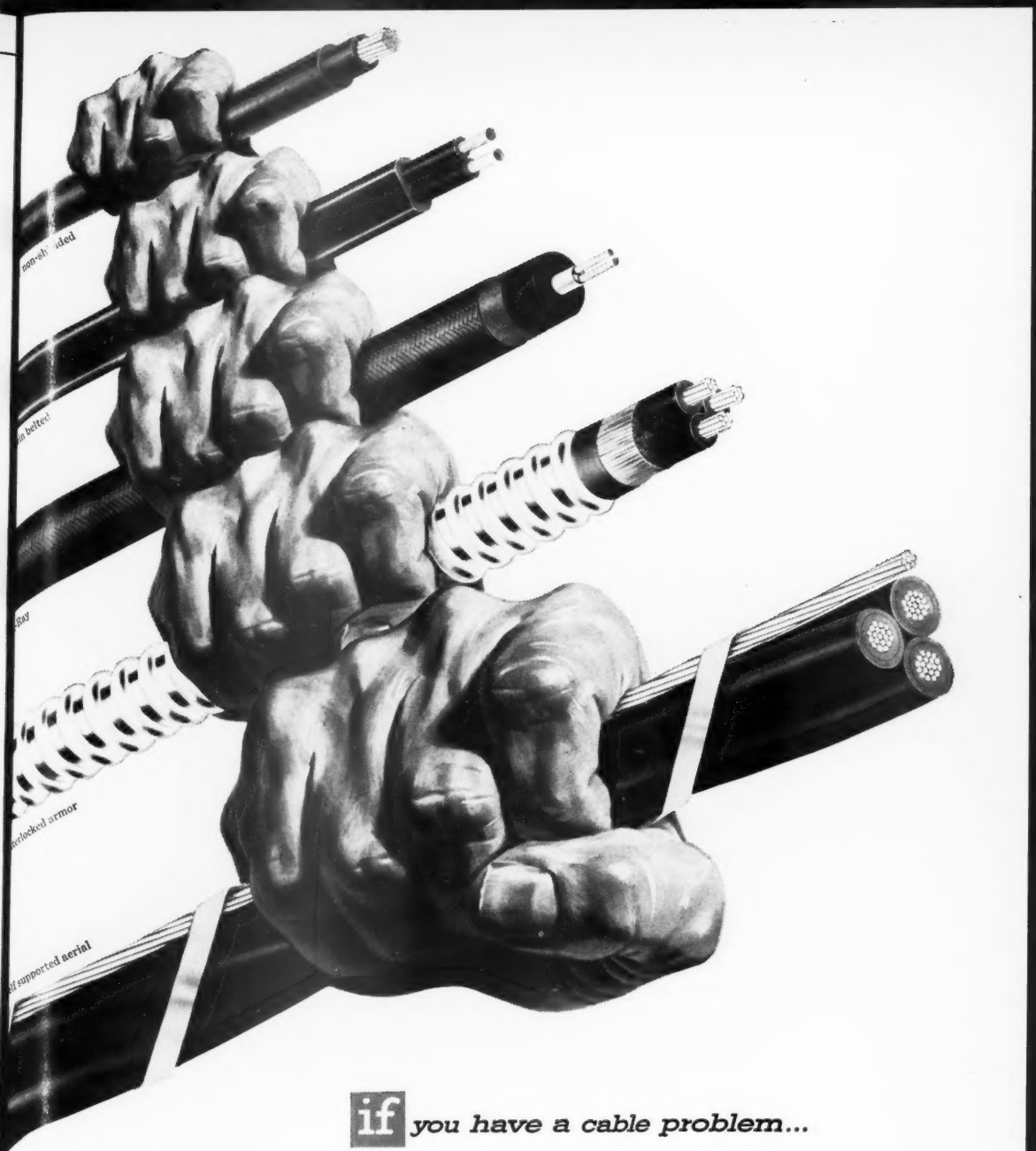

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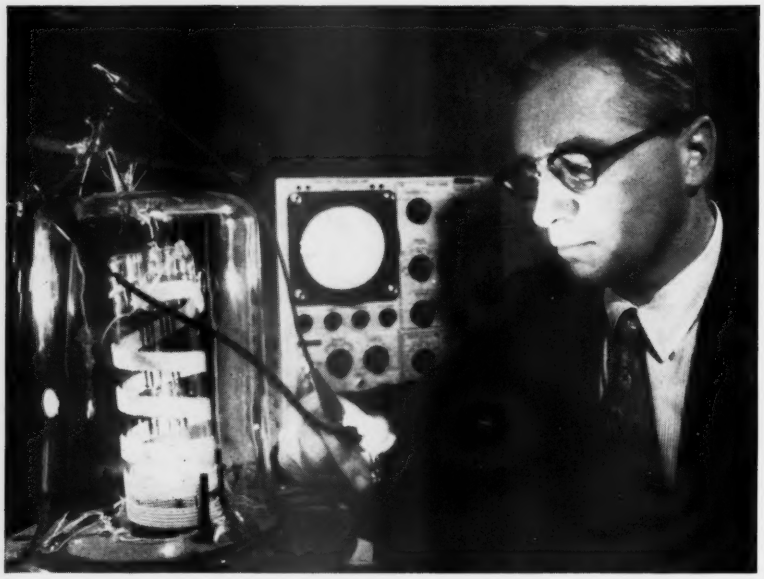

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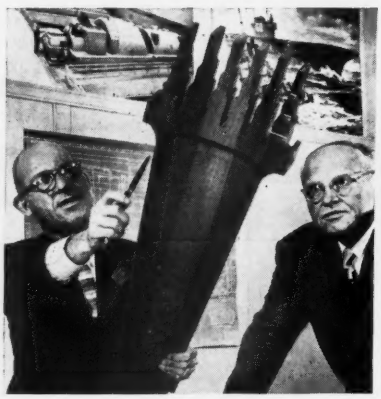

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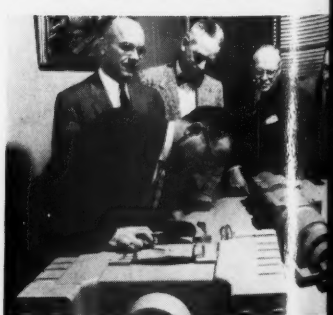

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